H8BSTAT: Business Statistics and Analytics

Module Code:	H8BSTAT
Long Title	Business Statistics and Analytics APPROVED
Title	Business Statistics and Analytics
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	5
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Departments:	School of Business
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	Critique and apply statistical and analytical techniques in developing conclusions about populations based on sample results.
LO2	Synthesise data and analyse business problems under conditions of uncertainty, formulate null and alternative hypotheses and exercise judgement in the resolution of business problems using hypothesis testing.
LO3	Evaluate and interpret relationships between two or more variables through the use of correlation and regression analysis.
LO4	Construct appropriate hypothesis tests to model business problems and apply hypothesis testing procedures to develop recommendations.
LO5	Use appropriate software in the application and interpretation of statistical methods and techniques and present findings/output in a professional and technical or non technical manner as required.
LO6	Work independently and/or as part of a multidisiplinary team in order to select appropriate quantitative tools and hence utilise statistical findings in an integrative manner.

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

Entry requirements	As per programme requirements.

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Module Content & Assessment

Indicative Content
Business Analytics & Statistics- An Overview (Week 1) Role of Statistics and Analytics in Business Descriptive vs. Inferential Statistics Types of data and scales of measurement Parametric and Non Parametric Statistics Use and Misuse of Analytical Tools and Statistics
Sources of Statistical Data (Week 2) Types of Data Sources Using Global, EU and Irish Business Data Sources Big Data and Analytics within Business Analysis of Data and Data Sources Software: Using the Data Analysis Toolpak: Excel Introduction to SPSS Sample Application of Content: Examining what statistics are appropriate for analysis given the scales of measurement of the variables under study.
An Introduction to Statistical Inference (Week 3-4) Sampling methods Sampling distribution of the sample mean Central Limit Theorem Point estimates and confidence intervals for a mean Software: Developing a probability distribution using excel Using SPSS to calculate confidence intervals Sample Application of Content: Considering the shape of a distribution of raw data and hence applying the central limit theorem (CLT) to the samples selected in order to demonstrate the approximation to normality. Application of the CLT to allow for sampling distributions from bisuness to be used effectively to make inferences about the population, eg: if the mean hourly wage for business graduates is €X. What is the likelihood that we could select a sample of 50 business graduates with a mean wage of €X+0.50 or more per hour assuming the standard deviation of the sample equals €Y per hour
Hypothesis Testing (Week 4-5) Introduction to Hypothesis Testing Hypothesis Testing Procedures One Sample Tests of Hypothesis
Hypothesis Testing: Two Sample Tests of Hypothesis (Week 6,8,9) Two Samples Tests of Hypothesis: Independent Samples Comparing Population Means with Unknown Population Standard Deviations (Pooled T Tests) Comparing Population Means with Unknown Population Standard Deviations (Unequal) Two Sample Tests of Hypothesis: Dependent Samples Introduction to the F Distribution Comparing Population Variances Software: Using excel/SPSS to carry out hypothesis tests Sample Application of Content: Selecting from a range of hypothesis tests to check the validity of a business statement(s) about a population parameter. For example candidates may be provided with a data set concerning hospital response rates by doctors in the surgical department A and B respectively and asked to test whether there is a difference in the mean response times for the two groups
Correlation & Regression (Week 10-12) Correlation & Covariance Coefficient Coefficient of Determination Testing the Significance of the Correlation Coefficient Introduction to Regression Analysis Linear Regression: Principles of Ordinary Least Squares Technique (OLS) • Assumptions underlying Linear Regression • Using Regression for Predictions Software: Using excel/SPSS to test for relationships between variables using graphics, correlation and hence regression analysis Sample Application of Content: Exploring the relationship between crime and resulting police complaints and hence estimating the strength of the relationship, testing for spurious correlations and using the regression equation in prediction.
Revision & CA (Week 13) n/a

Assessment Breakdown	%
Coursework	100.00%

Assessments

Full Time

Coursework

Assessment Type:	Project	**% of total:**	70
Assessment Date:	n/a	**Outcome addressed:**	1,2,3,4,5,6
Non-Marked:	No		

Assessment Description:
Learners will be presented with a data set and/or case study which is set within a busines context. Learners will be expected to summarise the data graphically and statistically and must undertake a number of prescribed tests on the data. A number of questions will be presented to the learner and they will be expected to evaluate, combine and synthesise the information and develop and present a detailed report of the findings.

Assessment Type:	Continuous Assessment	**% of total:**	30
Assessment Date:	n/a	**Outcome addressed:**	1,2,3,4,5,6
Non-Marked:	No		

Assessment Description:
Learners will be given two in class assessments/problem sets which address four key aspects of the module curriculum: graphical representation of data plus correlation and regression and probability plus probability distributions. The in class assessments/problem sets may include a mix of: short answer questions, multiple choice, vignettes and or problem based questions. All questions presented to students will be within a business context.

No End of Module Assessment

No Workplace Assessment

Reassessment Requirement

Coursework Only
This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

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Module Workload

Module Target Workload Hours 0 Hours

Workload: Full Time

Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Classroom and demonstrations	24	Per Semester	2.00
Tutorial	Mentoring and small-group tutoring	12	Per Semester	1.00
Independent Learning	Independent learning	89	Per Semester	7.42
			Total Weekly Contact Hours	3.00

Workload: Part Time

Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	No Description	2	Every Week	2.00
Lab	No Description	2	Every Week	2.00
			Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

Lind D.A., Marchal W.G., and Wathen S.A. (2015), Statistical Techniques in Business and Economics, 17th. McGraw Hill.

Supplementary Book Resources

Moore, D.S., Notz, W.I., and Fligner, M.A. (2015), The Basic Practice of Statistics, 7th. Macmillan Education.

Swift, L. and S. Piff. (2014), Quantitative Methods for Business, Management and Finance, 4th. Palgrave Macmillian.

Oakshott, L. (2012), Essential Quantitative Methods for Business, Management and Finance, 5th. Palgrave Macmillian.

Pease,G., Beresford, B., and Walker, L. (2014), Developing Human Capital: Using Analytics to Plan and Optimize Your Learning and Development Investments, Wiley.

Field, A. (2013), Discovering Statistics using IBM SPSS Statistics, 4th. SAGE Publications.

Levine, D., and Stephan, D.F. (2013), Statistics for Managers Using MS Excel, 7th. Pearson Education.

Davies, G. and Pecar, B.. (2013), Business Statistics using Excel, 2nd. Oxford University Press.

This module does not have any article/paper resources

This module does not have any other resources

Discussion Note:	