H7IBSA: Introduction to Business Statistics and Analytics

Module Code:	H7IBSA
Long Title	Introduction to Business Statistics and Analytics APPROVED
Title	Introduction to Business Statistics and Analytics
Module Level:	LEVEL 7
EQF Level:	6
EHEA Level:	First Cycle
Credits:	5
Module Coordinator:	COLETTE DARCY
Module Author:	Isabela Da Silva
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	Demonstrate an understanding of statistical principles, theories and methods and appreciate how they apply in a range of business and management decision making situations.
LO2	Recognise different types of data and associated statistical measures and their appropriateness in a range of scenarios
LO3	Utilise a range of descriptive statistics in order to evaluate and present information and data associated with univariate analyses and appreciate how they contribute in business intelligence.
LO4	Demonstrate proficiency in the principles and application of probability theory
LO5	Use appropriate software in the presentation and organisation of statistical data and hence select and apply appropriate statistical methods and techniques.

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

Entry requirements	As per programme requirements (outlined in 4.2.2 Minimum requirements for general learning)

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Module Content & Assessment

Indicative Content

Introduction
Introduction to Data Role of Statistics and Analytics in Business Descriptive vs. Inferential Statistics Data and Data Sources Use and Misuse of Analytical Tools and Statistics Measurement Scales Sample Application of Content: Differentiating between qualitative and quantitative variables and identifying what scales of measurement are appropriate in a variety of business contexts.

Describing Data: Frequency Tables & Graphics
Frequency Data & Frequency Tables Graphical Representation of Data: Bar Charts Pie Charts Histograms Scatter Plots & Linear Representation Sample Application of Content: Using a variety of business data sets containing raw data, both discrete and continuous.

Describing Data: Measures of Central Tendency
Mean Mode Median Sample Application of Content: Compare and contrast the main measures of central tendency and hence using both raw and frequency data from business contexts, identify a suitable measure of central tendency and hence calculate and interpret as appropriate.

Describing Data: Measures of Dispersion
Range & Mean Absolute Deviation Variance & Standard Deviation (Population and Sample) Symmetric Distributions and Skewness Kurtosis Sample Application of Content: Develop a frequency distribution and hence calculate the mean and standard deviation. Graphically present the distribution and discuss the symmetry of the distribution and the implications of same.

Basics ofProbability
The concept and language of probability The role of probability in statistics Approaches to assigning probabilities Rules of addition and multiplication for computing probability Conditional probability Sample Application of Content: Using probability trees to model business problems and hence calculate conditional probabilities. For example, in the case of finance, modelling an investment problem using a probability tree and hence calculation of conditional probabilities and expected values.

SOFTWARE APPLICATION:
The practical lab session(s) will be dedicated to the use of software, for example MS Excel, in order to develop appropriate tables and graphics to summarise data and to calculate measures of centre and dispersion for both grouped and ungrouped data. Learners will have access to the virtual desktop in order to access MS Excel or other software deemed appropriate.

Assessment Breakdown	%
Coursework	40.00%
End of Module Assessment	60.00%

Assessments

Full Time

Coursework

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

Assessment Description:
Formative assessment will be provided to learners using short answer questions. In addition, in class problems and discussions will provide an opportunity for formative learning and student feedback to be provided. Provision of individual feedback will be provided individually outside of lecture time or online through Moodle.

Assessment Type:	In class assessment	**% of total:**	40
Assessment Date:	n/a	**Outcome addressed:**	1,2,3,5
Non-Marked:	No		

Assessment Description:
Learners will be given a time-constrained in class assessment. The time-constrained assessment will take place in class and is worth 40% of the module grade. It may include a mix of short answer questions, multiple-choice choice, vignettes and/or problem based.

End of Module Assessment

Assessment Type:	Terminal Exam	**% of total:**	60
Assessment Date:	End-of-Semester	**Outcome addressed:**	1,4,5
Non-Marked:	No		

Assessment Description:
The examination will be two hours in duration with learners required to answer two questions, each worth 50 marks. Each question will have multiple parts and will include both calculation and theory elements. All questions will be marked according to clarity and the ability to apply statistical and quantitative techniques to solve business problems. Learners are required to interpret findings.

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.

Reassessment Description
The repeat strategy for this module is by examination. Learners will be afforded an opportunity to repeat the assessment(s) at specified times.

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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	
Independent Learning	Independent learning	101	Per Semester	8.42	
			Total Weekly Contact Hours	2.00	

Module Resources

Recommended Book Resources

Lind, D.A., Marchal, W.G. and Wathen, S.A , (2021). Statistical Techniques in Business and Economics,18th Ed , McGraw-Hill.

Supplementary Book Resources

Camm, J.D, Cochran, J.J, Fry, M.J. and Ohlmann, J.W, (2021) , Business Analytics (eTextbook version also available. Cengage Learning.

Anderson, D.R., Sweeney, D.J, Williams, T.A, Camm, J.D. and Cochran, J.J., (2020).Modern business statistics with Microsoft Excel. Cengage Learning.

Field, A. (2017) Discovering Statistics using IBM SPSS Statistics. SAGE Publications.

Salkind, N.J. and Frey, B.B, (2021). Statistics for People who (Think They) Hate Statistics Using Microsoft Excel. Sage publications.

Levine, D, Stephan, D.F. and Szabat, K.A. (2021). Statistics for Managers Using MS Excel, Pearson Education.

This module does not have any article/paper resources

Other Resources

[Website], Jonathan Lambert NCI Mathematics Development and Support Videos,
https://www.youtube.com/MathsAndStats

[Website], European Commission (Eurostat),
http://epp.eurostat.ec.europa.eu/

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

[Website], Irish Stock Exchange,
http://www.ise.ie

[Website], Economic & Social Research Institute,
http://www.esri.ie

[Website], European Social Survey,
https://www.europeansocailsurvey.org

[Website], World Bank Data,
http://data.worldbank.org/

[Website], Institute for Statistics Education,
http://www.statistics.com

[Website], OECD Statistical Data,
https://data.oecd.org/

[Website], United States Department of Labour Bureau of Labour Statistics,
http://www.bls.gov/

[Website], United States Census Bureau,
http://www.census.gov/

[Journal], Applied Quantitative Methods.

[Journal], Computational Statistics & Data Analysis..

[Journal], Business and Economic Statistics..

[Journal], Financial and Quantitative Analysis..

[Journal], Review of Economics and Statistics..

[Journal], Oxford Bulletin of Economics and Statistics..

[Journal], Applied Statistics.

[Journal], Quantitative and Qualitative Analysis in Social Sciences.

[Journal], Quantitative Finance..

[Journal], Journal of Multivariate Analysis..

[Journal], Review of Quantitative Finance and Accounting..

[Journal], Review of Economic Analysis..

[Journal], Decision Analysis..

Discussion Note: