

A6ISF: Introduction to Statistics for Finance

Module Code:	A6ISF
Long Title	Introduction to Statistics for Finance APPROVED
Title	Introduction to Statistics for Finance
Module Level:	LEVEL 6
EQF Level:	5
EHEA Level:	Short Cycle
Credits:	5
Module Coordinator:	JONATHAN BRITTAIN
Module Author:	CORINA SHEERIN
Departments:	School of Business
Specifications of the qualifications and experience required of staff	
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Demonstrate a comprehensive understanding of statistical principles, theories and methods and how they are practically applied in a variety of decision making situations within fund administration and the broader domain of international financial services.
LO2	Recognise, investigate and evaluate different types of data and associated statistical measures and their appropriateness and ethical use in a range of scenarios.
LO3	Tabulate, synthesise and present abstract data and information in a useful and informative manner and hence identify and defend appropriate measures of central tendency and dispersion in order to describe financial/economic/fund administration data set(s).
LO4	Demonstrate proficiency in the principles and application of probability theory in order to model and articulate problems and hence use reasoning to calculate event probabilities
LO5	Use software in the dissemination, presentation and organisation of statistical data and hence select and apply evidence based appropriate statistical methods and techniques to creatively problem solve
LO6	Communicate, interpret and justify complex statistical findings/output in a technical and non-technical manner within the community of practice.
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

Introduction

• Definition and role of statistics • Descriptive vs. Inferential Statistics • Types of data and scales of measurement . Sample Application of Content: Understanding of the role of statistics in decision making in Fund Administration and IFS and hence differentiating between qualitative and quantitative variables and identifying what scales of measurement are appropriate in a variety of contexts.

Describing Data: Frequency Tables & Graphics

• Frequency Data & Frequency Tables • Graphical Representation of Data: o Bar Charts o Pie Charts o Ogives & Frequency Polygon Graphs o Histograms o Scatter Plots & Linear Representation . Software Application: Using Microsoft Excel to develop tables, charts and graphics. - Sample Application of Content: Using a variety of financial and economic data sets containing raw data, both discrete and continuous, using the excel count if function develop appropriate frequency tables and hence select appropriate graphics and present data in a suitable format and hence interpret presentation of data.

Describing Data: Measures of Central Tendency

• Mean • Mode • Median . Software Application: Using Microsoft excel data analysis to calculate descriptive statistics relating to measures of central tendency and hence interpret statistical output. - Sample Application of Content: Compare and contrast the main measures of central tendency and hence using both raw and frequency data from financial and economic 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 Software Application: Using Microsoft excel data analysis toolpak to calculate descriptive statistics and interpret statistical output. - 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.

Probability

• 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 • Probability Trees. Sample Application of Content: Using probability trees to model problems and hence calculate conditional probabilities. For example, using probability trees to model a financial problem e.g.: the direction of changes in a stock's quarterly EPS given four possible scenarios, hence calculate conditional probabilities as additional information is revealed

Introduction to Probability Distributions

• The concept of probability distributions • Binomial probability distribution • Normal probability distribution • Standardisation and probabilities under a normal curve . Software Application: Using Microsoft excel to calculate z scores and associated probabilities for population data. - Sample Application of Content: Using data on fund returns over certain time periods to construct an appropriate distribution to represent the data. Assuming the data is normally distributed, demonstrate understanding of the process of standardisation and calculate probabilities using the standard normal distribution.

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

Assessments

Full Time

Coursework

Assessment Type:	Formative Assessment	% of total:	Non-Marked
Assessment Date:	n/a	Outcome addressed:	1,2,3,4,5,6
Non-Marked:	Yes		
Assessment Description: Formative assessment will be provided to learners through the use of on-line quizzes and short answer questions. In addition, in class problems and discussions will provide an opportunity for formative learning and learner feedback to be provided. Provision of individual feedback will be provided individually outside of lecture time or on line through Moodle			
Assessment Type:	CA 1 (0380)	% of total:	20
Assessment Date:	n/a	Outcome addressed:	1,2,3
Non-Marked:	No		
Assessment Description: Continuous Assessment 1 is worth 20%. It will comprise of multiple choice and/or short answer or problem based questions. This assessment will be an in class test and will examine all material covered up until that point.			
Assessment Type:	CA 2 (0390)	% of total:	30
Assessment Date:	n/a	Outcome addressed:	5,6
Non-Marked:	No		
Assessment Description: Continuous Assessment 2 is worth 30%. The assignment will require learners to draw on their knowledge of statistics and in particular graphics and measures of centre and spread to effectively present, analyse and interpret data and express their findings in a technical and non-technical manner. Lab sessions will be used to support this assessment. 'Big' datasets such as the European Social Survey (http://www.europeansocialsurvey.org/) will be utilised herein. Learners may be asked to develop a poster/infographic or report which synthesises and summarises a number of variables from the data set.			

End of Module Assessment

Assessment Type:	Terminal Exam	% of total:	50
Assessment Date:	End-of-Semester	Outcome addressed:	1,2,3,4,6
Non-Marked:	No		
Assessment Description: The examination will be a minimum of two hours in duration and may include a mix of: short or long problem based questions. All questions will be marked according to clarity, ability to apply statistical and quantitative techniques to solve business problems and above all interpret findings and communicate both an understanding of the process undertaken as well as the findings uncovered in a technical and non-technical manner as required			

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	Learners will have 26 hours a semester of college-based classroom contact. These hours will be practice led with theory and practice time allocated in lectures. The lecture/practical work will be scheduled during the day per week that learners attend the College. There are 13 week teaching timetabled within each semester, with a 'reading week' approximately half way through this period in which there will be no formal classes but in which learners will be engaged in directed learning	26	Every Week	26.00
Independent Learning	No Description	65	Every Week	65.00
Directed Learning	Directed e-learning	14	Every Week	14.00
Workbased learning	No Description	20	Every Week	20.00
Total Weekly Contact Hours				60.00

Module Resources	
<i>Recommended Book Resources</i>	
Lind D.A., Marchal W.G., and Wathen S.A. (2015), Statistical Techniques in Business and Economics, 16th. McGraw Hill.	
<i>Supplementary Book Resources</i>	
Sowey, E. and Petocz, P.. (2017), , A Panorama of Statistics: Perspectives, Puzzles and Paradoxes in Statistics,, Wiley Publications. Triola, M.F. (2015), Essentials of Statistics,, 5th. Pearson Education. Davies, G. and Pecar, B. (2013), Business Statistics using Excel,, 2nd. Oxford University Press.	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	