H8STATMF: Statistical Methods for Finance

Module Code:	H8STATMF
Long Title	Statistical Methods for Finance APPROVED
Title	Statistical Methods for Finance
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	10
Module Coordinator:	
Module Author:	DAVE CORMACK
Departments:	
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	Apply statistical principles, theories and methods and appreciate how they apply in a range of business decision making situations
LO2	Recognise and evaluate different types of data and their appropriateness in a range of scenarios
LO3	Graphically tabulate, summarise and present information in a useful and informative manner suitable for presentation to senior management teams
LO4	Identify and defend the appropriate measures of central tendency and dispersion in order to describe a data set
LO5	Describe key probability concepts and their application within real world context
LO6	Select and apply probability distributions to utilise within various scenarios and compute probabilities based on practical situations using the, Normal and Binomial distributions
LO7	Define a sampling distribution of the sample mean and apply the Central Limit theorem in the development of inferences about the population
LO8	Synthesise, evaluate and interpret relationships between two variables through the use of correlation and regression 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
The Role of Statistics in Finance (Week 1) • Definition and Role of Statistics • Descriptive versus Inferential Statistics • Primary and Secondary Data • Scales of Measurement
Describing Data: Frequency Tables & Graphics (Week 2-3) • Frequency Data & Frequency Tables • Graphical Representation of Data: o Bar Charts o Pie Charts o Stem and Leaf Plots o Histograms o Scatter Plots
Describing Data: Measures of Central Tendency (Week 4) • Mean: Arithmetic versus Geometric • Mode • Median • Calculating the mean of a portfolio
Describing Data: Measures of Dispersion (Week 5-6) • Range • Mean Absolute Deviation • Variance & Standard Deviation • Skewness • Kurtosis • Calculating the variance and standard deviation of a two stock portfolio • Relationship between risk and return
Probability (Week 7-8) • The role of probability in financial markets • Approaches to assigning probability • Addition and Multiplication Rule • Conditional Probability: Bayes Theorem, Probability Trees
Probability Distributions (Week 9) • Normal distribution • Binomial Distribution
Collecting Data (Week 10-12) • Sampling Methods • Sampling Error • Sampling Distribution of the Sample Mean • Central Limit Theorem
Correlation & Regression (Week 13) • Correlation Coefficient • Calculating the covariance and correlation between two securities • Coefficient of Determination • Introduction to Regression Analysis

Assessment Breakdown	%
Coursework	100.00%

Assessments

Full Time

Coursework

Assessment Type:	Project	**% of total:**	50
Assessment Date:	n/a	**Outcome addressed:**	1,2,3,4,8
Non-Marked:	No		

Assessment Description:
Learners will be presented with a financial or economic data set and/or case study. 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. Students will be required to undertake a formal presentation defending their findings. The written submission will be worth 40% and the presentation

Assessment Type:	Assignment	**% of total:**	50
Assessment Date:	n/a	**Outcome addressed:**	5,6,7,8
Non-Marked:	No		

Assessment Description:
Learners will be given two in class assessments worth 25% each which will address four key aspects of the module curriculum: probability, probability distributions, collecting data and correlation and regression. The in class assessments may include a mix of: short answer questions, multiple choice, vignettes and or problem based questions. All questions presented to students will be within the context of financial services and its attendant fields. Continuous Assessment 1 will assess LO5 and LO6. Continuous Assessment 2 will assess LO7 and LO8

No End of Module Assessment

No Workplace Assessment

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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*
Lab	No Description	4	Every Week	4.00
Independent Learning Time	No Description	198	Once per semester	16.50
			Total Weekly Contact Hours	4.00

Workload: Part Time

Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lab	No Description	4	Every Week	4.00
Independent Learning Time	No Description	198	Once per semester	16.50
			Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

Lind D.A., Marchal W.G., and Wathen S.A.. (2010), Statistical Techniques in Business and Economics, 14th, 14th International. McGraw Hill.

Koop G.,. (2006), Analysis of Financial Date, Wiley.

Supplementary Book Resources

De Fusco R.A., Pinto J.E., Runkle D.E., and McLeavey D.W. (2007), Quantitative Methods for Investment Analysis, Wiley (CFA Institute).

Newbold, P., Carlson, W., Thorne, B. (2009), Statistics for Business and Economics, 7th. Pearson.

Alexander, C.. (2008), Market Risk Analysis Quantitative Methods in Finance, Wiley.

This module does not have any article/paper resources

Other Resources

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

[Website], http://www.ecb.int/home/html/index.en.ht ml.

[Website], www.cso.ie.

[Website], www.bloomberg.com.

[Website], www.reuters.com.

Discussion Note:	