

Module Title:	Quantitative Techniques 2 - Business Mathematics
Language of Instruction:	English
Credits:	5
NFQ Level:	6
Module Delivered In	15 programme(s)
Teaching & Learning Strategies:	Student-centred lectures fostering individual and collaborative engagement with problem-solving exercises and classroom activities, in class demonstrations, blended learning (integrated mathcasts, software screencasts, applets, spreadsheets, eBooks and other learning resources), independent learning. Examples of real data and statistics used to develop students' critical thinking, ability to deal with uncertainty and international perspectives (e.g. by exploring issues related to economics, social justice, climate change ...) Initial development of enquiry skills with integrated emphasis on IT skills.
Module Aim:	The aim of this module is to develop students' mathematical and statistical reasoning and skills, including to explore business scenarios using mathematics. Students will be introduced to the areas of investment mathematics, mathematical modelling, probability, normal distribution, and confidence intervals. The module's emphasis on both the conceptual and practical will assist students to confidently and fluently use mathematical and statistical thinking and techniques to enquire using data, solve problems and make better business decisions.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Solve well-formed problems in investment mathematics by identifying variables, selecting the appropriate formula, applying appropriate mathematical techniques, and presenting the answer in a business context
LO2	Use mathematical functions and equations to represent and explore business problems, and use differentiation to find optimum solutions
LO3	In business scenarios, calculate and interpret probabilities (including involving the normal distribution) and confidence intervals
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
No requirements listed	

Module Content & Assessment

Indicative Content

Investment Mathematics (40%)

Calculate compound interest; Calculate payments and lump sums for sinking funds, annuities and loans; Evaluate investments using Net Present Value and Internal Rate of Return approaches; Depreciate an asset using the straight line and reducing balance methods; Appreciate the role of information technology in investment mathematics

Mathematical Modelling and Differentiation (20%)

Describe mathematical models and functions; Differentiate simple functions; Find maximum and minimum points for functions using differentiation; Create simple business models using functions; Differentiate simple business models to find maximum revenue and profit and minimum cost; Appreciate the role of information technology in graphing and manipulating functions and models

Probability, Normal Distribution and Confidence Intervals (40%)

Recognise and explain randomness; Use the addition and multiplication laws of probability; Interpret contingency tables; Calculate conditional probability; Calculate expected values; Describe a normal distribution, calculate Z scores and find areas above, below or between given values, and determine Z scores from given probabilities, apply the normal distribution to business problems; Describe the sampling distribution; Calculate confidence intervals

Assessment Breakdown	%
Continuous Assessment	40.00%
End of Module Formal Examination	60.00%

Continuous Assessment

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Examination	Mid-term test	1,2	10.00	Week 7
Other	Online quizzes	1,2,3	30.00	n/a

No Project

No Practical

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	Final Examination	1,2,3	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	3.00
Independent Learning	Every Week	6.00
Total Hours		9.00

Workload: Part Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	1.50
Independent Learning Time	Every Week	7.50
Total Hours		9.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_BBACT_B	Bachelor of Arts (Honours) in Accounting	2	Mandatory
CW_BBACF_B	Bachelor of Business (Honours) in Accounting and Finance	2	Mandatory
CW_BBLAW_B	Bachelor of Business (Honours) in Business with Law	2	Mandatory
CW_BBHRM_B	Bachelor of Business (Honours) in Human Resource Management	2	Mandatory
CW_HHIBU_B	Bachelor of Business (Honours) in International Business	2	Mandatory
CW_BBBBM_B	Bachelor of Business (Honours) in Management	2	Mandatory
CW_BBSCM_B	Bachelor of Business (Honours) in Supply Chain Management	2	Mandatory
CW_BBBUS_D	Bachelor of Business in Business	2	Mandatory
CW_BBHRM_D	Bachelor of Business in Human Resource Management	2	Mandatory
CW_BBINB_D	Bachelor of Business in International Business incorporating Double Degree	2	Mandatory
CW_BPMKT_D	Bachelor of Business in Marketing	2	Mandatory
CW_BBSCM_D	Bachelor of Business in Supply Chain Management	2	Mandatory
CW_BBCAA_C	Higher Certificate in Accounting	2	Mandatory
CW_BBBUS_C	Higher Certificate in Business	2	Mandatory
CW_BBLAW_C	Higher Certificate in Business with Law	2	Mandatory