# H6QTM: Quantitative Methods

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| **Module Code:** | H6QTM |
| **Long Title** | Quantitative Methods APPROVED |
| **Title** | Quantitative Methods |
| **Module Level:** | LEVEL 6 |
| **EQF Level:** | 5 |
| **EHEA Level:** | Short Cycle |
| **Credits:** | 5 |
| **Module Coordinator:** | MICHELE KEHOE |
| **Module Author:** | CORINA SHEERIN |
| **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 a basic understanding of 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 associated statistical measures and their appropriateness in a range of scenarios. |
| LO3 | Tabulate, summarise and present information in a useful and informative manner and hence identify and defend appropriate measures of central tendency and dispersion in order to describe a data set. |
| LO4 | Demonstrate proficiency in the principles and application of statistical inference and apply this knowledge in developing conclusions about populations based on sample results. |
| LO5 | Use software in the presentation and organisation of statistical data and hence select, apply appropriate statistical methods and techniques |
| LO6 | Communicate and interpret statistical findings/output in a technical and non-technical manner. |

**Dependencies**

***Module Recommendations***

No recommendations listed

***Co-requisite Modules***

No Co-requisite modules listed

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| ***Entry requirements*** | |

# H6QTM: Quantitative Methods

## Module Content & Assessment

| Indicative Content |
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| **Introduction (Week 1)**<br>Definition and role of statistics Descriptive vs. Inferential Statistics Types of data and scales of measurement 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 (Week 2 & 3)**<br>Frequency Data & Frequency Tables Graphical Representation of Data: Bar Charts, Pie Charts, Stem and Leaf Plots, Histograms, Scatter Plots & Linear Representation Software Application: Using Microsoft Excel to develop tables, charts and graphics. Sample Application of Content: Using a variety of business data sets containing raw data, both discrete and continuous, using the excel PivotTables to 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 (Week 4)**<br>· Mean: Arithmetic versus Geometric · 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 business contexts, identify a suitable measure of central tendency and hence calculate and interpret as appropriate. |
| **Describing Data: Measures of Dispersion (Week 5 & 6)**<br>· 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 (Week 7 & 8)**<br>· The concepts 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. |
| **Probability Distributions (Week 9 & 10)**<br>· 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 salary payments in company X 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. |
| **An Introduction to Statistical Inference (Week 11 & 12)**<br>· Sampling methods · Sampling distribution of the sample mean · Central Limit Theorem · Point estimates and confidence intervals for a mean Software Application: Using Microsoft excel to calculate z-scores and calculate associated probabilities for sample data Sample Application of Content: Using the properties of the central limit theorem compute probabilities using the standard normal distribution. Construct confidence intervals for estimates of population parameters. |

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

**Assessments**

## Full Time

### Coursework

| | | | |
| --- | --- | --- | --- |
| **Assessment Type:** | Continuous Assessment | **% of total:** | 50 |
| **Assessment Date:** | n/a | **Outcome addressed:** | 1,2,3,5 |
| **Non-Marked:** | No | | |

**Assessment Description:**
Candidates are required to complete an assessment.

### End of Module Assessment

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| --- | --- | --- | --- |
| **Assessment Type:** | Terminal Exam | **% of total:** | 50 |
| **Assessment Date:** | End-of-Semester | **Outcome addressed:** | 1,2,3,4,5,6 |
| **Non-Marked:** | No | | |

**Assessment Description:**
Final Examination.

No Workplace Assessment

### Reassessment Requirement

**Repeat failed items**
*The student must repeat any item failed*

**Reassessment Description**
Candidates will attempt the repeat assessment for the module, if they do not successfully pass the module. Learners are required to attempt all assessments attaching to a module. For those modules where all learning outcomes are assessable with a final examination, the learner does not have to re-sit failed individual CA components.

# H6QTM: Quantitative Methods

## 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 |

## Module Resources

*Recommended Book Resources*

**Lind D.A., Marchal W.G., and Wathen S.A.. (2020), Statistical Techniques in Business and Economics, 18th Ed. McGraw Hill.**

*Supplementary Book Resources*

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

**Berenson, M., Levine, Szabat, K.A.. (2015), Basic Business Statistics, Global Edition, 13th. Pearson Education.**

**Field, A. (2020), Discovering Statistics Using R, 2nd. Sage Publications.**

**Taylor, S. (2007), Business Statistics for Non-Mathematicians (Paperback or Ebook version), 2nd. Palgrave Macmillan.**

*This module does not have any article/paper resources*

*This module does not have any other resources*

| **Discussion Note:** | |
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