



Title:	Statistical Calculations APPROVED
Long Title:	Statistical Calculations
Module Code:	STAT6006
Credits:	5
NFQ Level:	Fundamental
Field of Study:	Statistics
Valid From:	Semester 1 - 2009/10 (September 2009)
Module Delivered in	4 programme(s)
Module Coordinator:	David Goulding
Module Author:	
Module Description:	This module will introduce the student to the organisation and presentation of statistical data. Quantitative representation of data and trends and relationships between variables will also be encountered.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Present data in table and graphical form.
LO2	Calculate and interpret statistical measures.
LO3	Establish and describe relationships between two variables.
LO4	Recognise and analyse trends in statistical data and make forecasts.
LO5	Use a statistical software package for statistical calculation and analysis.
Pre-requisite learning	
Module Recommendations	
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</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. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</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. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
No requirements listed	
Co-requisites	
No Co Requisites listed	

Module Content & Assessment

Indicative Content

Handling Statistical Data

Sources and collection of data. Discrete and continuous data. Tabulation and presentation. Stem and leaf plots, histogram, frequency polygon, cumulative frequency polygon.

Descriptive Statistics

Measures of location: mean, median, mode, geometric mean. Measures of dispersion: range, mean deviation, standard deviation, interquartile range. Coefficient of variation. Skewness.

Regression and Correlation

Independent and dependent variables. Scatter graph. The simple linear model. Coefficient of correlation and coefficient of determination. Spearman's coefficient of rank correlation.

Time Series and Forecasting

Decomposition of time series into trend, seasonal, cyclical, and residual variations. Moving averages. Seasonal index. Additive and multiplicative models. Linear trend equation. Forecasting. Seasonally adjusted data.

Assessment Breakdown	%
Course Work	30.00%
End of Module Formal Examination	70.00%

Course Work

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Short Answer Questions	Assessment	1,2	15.0	Week 7
Practical/Skills Evaluation	Lab-based assessment	3,4,5	15.0	Week 10

End of Module Formal Examination

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	End-of-Semester Final Examination	1,2,3,4	70.0	End-of-Semester

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.

The institute reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time				
<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Theory Class	3.0	Every Week	3.00
Lab	Practical	1.0	Every Week	1.00
Independent & Directed Learning (Non-contact)	Study and assigned homework	3.0	Every Week	3.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				4.00

This module has no Part Time workload.

Module Resources

Recommended Book Resources

- G.Burton,G.Carrol & S.Wall 2002, *Quantitative Methods for Business and Economics*, Prentice Hall [ISBN: 0-273-65570-1]
- A.Francis 2004, *Business Mathematics & Statistics*, Thompson Learning [ISBN: 0-826-45410-0]

Supplementary Book Resources

- C.Brasc&C.Brasc 2004, *Understanding Basic Statistics*, Houghton Mifflin College [ISBN: 0-618-31553-5]

This module does not have any article/paper resources

Other Resources

- Website: <http://mathsonline.cit.ie/>
- Website: <http://www.cso.ie/>

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_SCHQA_8	<u>Bachelor of Science (Honours) in Analytical Chemistry with Quality Assurance</u>	3	Elective
CR_SESST_8	<u>Bachelor of Science (Honours) in Environmental Science and Sustainable Technology</u>	3	Mandatory
CR_SCHEM_7	<u>Bachelor of Science in Analytical and Pharmaceutical Chemistry</u>	3	Elective
CR_SCHEM_6	<u>Higher Certificate in Science in Chemistry</u>	3	Elective