

MATH C8Z12: Spreadsheet Data Analytics

Module Details	
Module Code:	MATH C8Z12
Full Title:	Spreadsheet Data Analytics APPROVED
Valid From::	Semester 1 - 2019/20 (June 2019)
Language of Instruction:	English
Duration:	1 Semester
Credits::	5
Module Owner::	Kevin McDaid
Departments:	Unknown
Module Description:	<p>This module will provide the learner with an introduction to the field of data analytics together with an understanding of the potential of Spreadsheet technology in this area. On completion of the module the learner should understand the role of data analytics in modern business. The learner should also have a working knowledge of Excel and be capable of running an advanced statistical analysis of static data; from generating descriptive statistics to building models and creating advanced data visualisations. In addition, linking with their learning in the parallel module Statistics in R, the learner will create R based scripts for the repeated analysis of data.</p>

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	Module Learning Outcome Description
MLO1	Describe and critique the field of data analytics and its function in modern business.
MLO2	Implement basic statistical analysis of static data using Spreadsheet technology.
MLO3	Design and build appropriate data models using spreadsheet technology.
MLO4	Create and interpret effective Data Visualisations.
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 DkIT 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	

Module Indicative Content	
Introduction to Data Analytics Overview of Data Science. Types of Data/ Big Data, the role of Data Analytics in decision-making and data analytics lifecycle.	
Introduction to Spreadsheets Reading data into Excel; Basic data arithmetic & manipulation: formulas, functions and referencing; Organising data: IF/ Nested_IF's/ VLOOKUP/ HLOOKUP; Filtering & Pivot Tables; Solver Plug-in.	
Descriptive Statistics Measures of Centrality, Variability & Correlation in excel.	
Probability in Excel Probability distribution functions in excel; Discrete (Binomial, Poisson) and Continuous (Normal) distributions.	
Spreadsheet Data to Business Models Introduction to model building in excel; Simple Linear Regression models.	
Data Visualisation Creating and interpreting appropriate data visualisation in excel; Bar Charts, Histogram, Scatterplots, Sparklines. BI reporting and visualisation tools. Dashboards.	
Module Assessment	
Assessment Breakdown	%
Course Work	30.00%
Project	50.00%
Practical	20.00%
Module Special Regulation	

Assessments

Full Time On Campus			
Course Work			
Assessment Type	Continuous Assessment	% of Total Mark	30
Marks Out Of	0	Pass Mark	0
Timing	n/a	Learning Outcome	2,3,4
Duration in minutes	0		
Assessment Description A set of practical exercises, including short answer question exercises, small scale statistical analysis using excel, interpretation and in-class discussion of findings.			
Project			
Assessment Type	Project	% of Total Mark	50
Marks Out Of	0	Pass Mark	0
Timing	Week 12	Learning Outcome	1,2,3,4
Duration in minutes	0		
Assessment Description Data Project 1. Data analysis project involving all stages of the Data Analytics Lifecycle. (From pre-processing data, generating descriptive statistics creating appropriate visualisations and building simple models, to interpreting output and communication of findings)			
Practical			
Assessment Type	Practical/Skills Evaluation	% of Total Mark	20
Marks Out Of	0	Pass Mark	0
Timing	Week 6	Learning Outcome	4
Duration in minutes	0		
Assessment Description Practical Test in Excel			
No Final Examination			

Part Time On Campus			
Course Work			
Assessment Type	Continuous Assessment	% of Total Mark	30
Marks Out Of	0	Pass Mark	0
Timing	n/a	Learning Outcome	2,3,4
Duration in minutes	0		
Assessment Description A set of practical exercises, including short answer question exercises, small scale statistical analysis using excel, interpretation and in-class discussion of findings.			
Project			
Assessment Type	Project	% of Total Mark	50
Marks Out Of	0	Pass Mark	0
Timing	Week 12	Learning Outcome	1,2,3,4
Duration in minutes	0		
Assessment Description Data Project 1. Data analysis project involving all stages of the Data Analytics Lifecycle. (From pre-processing data, generating descriptive statistics creating appropriate visualisations and building simple models, to interpreting output and communication of findings)			
Practical			
Assessment Type	Practical/Skills Evaluation	% of Total Mark	20
Marks Out Of	0	Pass Mark	0
Timing	Week 6	Learning Outcome	4
Duration in minutes	0		
Assessment Description Practical Test in Excel			
No Final Examination			

Module Workload

Workload: Full Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	There will be three-hours of lab-based classes per week. In these theory / practical sessions, the delivery of theory will be integrated with the practical implementation of that theory.	Every Week	3.00	3
Directed Reading	Non Contact	Guided preparation, reading and exercises.	Every Week	2.00	2
Independent Study	Non Contact	Independent reading and practical work.	Every Week	3.00	3
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					3.00

Workload: Part Time On Campus

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Practical	Contact	There will be three-hours of lab-based classes per week. In these theory / practical sessions, the delivery of theory will be integrated with the practical implementation of that theory.	Every Week	3.00	3
Directed Reading	Non Contact	Guided preparation, reading and exercises.	Every Week	2.00	2
Independent Study	Non Contact	Independent reading and practical work.	Every Week	3.00	3
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					3.00

Module Resources
<i>Recommended Book Resources</i>
Alberto Cordoba. (2014), Understanding the Predictive Analytics Lifecycle, Wiley, [ISBN: 1118867106].
<i>Supplementary Book Resources</i>
<p>Gregory S. Nelson. (2018), The Analytics Lifecycle Toolkit: A Practical Guide for an Effective Analytics Capability, Wiley, [ISBN: B07BB63MXH].</p> <p>Michael Alexander. (2010), Excel Dashboards and Reports, Microsoft Press, [ISBN: 9780470620129].</p> <p>John Walkenbach. (2015), Excel 2016 Bible, Wiley, [ISBN: 9781119067511].</p> <p>Judith Hurwitz. (2013), Big Data For Dummies, For Dummies, [ISBN: 9781118504222].</p> <p>Peter Kalmstrom. (2015), Excel 2016 from Scratch: Excel course with demos and exercises, kalmstrom.com Business Solutions, [ISBN: 1515134156].</p>
<i>This module does not have any article/paper resources</i>
<i>Other Resources</i>
<p>Website, Effective Excel Visualisation, http://www.excelcharts.com</p> <p>Website, Excel User, http://www.exceluser.com</p>