APPROVED

RESA C9009: Research Process for Data Analytics

Module Details

Module Code:	RESA C9009
Full Title:	Research Process for 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:	This module aims to provide learners with the knowledge, research skills and competencies required to analyse, plan and implement an advanced data analytics research project from the initial concept phase through to successful completion and communication of results.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Analyse, plan and manage the lifecycle stages of a data analytics research project.
MLO2	Critically evaluate the issues involved in carrying out research and to use that understanding to make informed research judgements.
MLO3	Critique the literature in a systematic and professional manner
MLO4	Synthesise their knowledge of qualitative and quantitative research with a view to selecting the appropriate method of enquiry for a given data analytics project.
MLO5	Evaluate and present the results of a data analytics research project in a scholarly way.

Pre-requisite learning
Module Recommendations *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).*
No recommendations listed

Module Indicative Content
Data Analytics Lifecycle Types of problems. Data Analytics Processess (eg CRISP-DM). Lifecycle stages. Case studies.
Types of Research Fundamental and Applied Research. Qualitative vs Quantitative.
Research Methodologies Scientific Method. Research paradigms - Positivist and Interpretivist approaches - Mixing methodologies
Research Design Problem identification. Establishment of business value. Specification of research question and hypotheses. Aims and objectives. Selection of methodology. Proposal writing.
Literature Review Types of literature review and methods. Systematic searches and reviews. Critical analysis. Structuring and writing the literature review.
Project Management Planning. Scope, quality, cost and schedule management. Contemporary issues. Communication and dissemination of results. Report writing. Presentation.

Module Assessment

Assessment Breakdown	%
Course Work	100.00%

Module Special Regulation

Assessments

Full-time

Course Work

Assessment Type	Presentation	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 4	**Learning Outcome**	1,2
Duration in minutes	0		

Assessment Description
Working in teams of 2 the learners will develop and present a report that details the role of data analytics, the types of data available and the activity at each stage of a process to solve a particular data analytics problem. As part of the assessment process the learners analyse the significant ethical considerations and will reflect on their outputs and performance.

Assessment Type	Written Report	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 8	**Learning Outcome**	3,5
Duration in minutes	0		

Assessment Description
The learner will conduct a literature review based on a chosen topic and present this in a final report.

Assessment Type	Written Report	**% of Total Mark**	40
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	2,4,5
Duration in minutes	0		

Assessment Description
As part of a cross module project the learner will frame their work in the form of a research proposal. The report should specify a research question and hypotheses, should present the question in the context of current literature on the area, propose and justify a chosen methodology and should develop a feasible plan for completion of the work. The learner will include a reflective journal that will also be assesed.

No Project

No Practical

No Final Examination

Part-time

Course Work

Assessment Type	Presentation	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 4	**Learning Outcome**	1,2
Duration in minutes	0		

Assessment Description
Working in teams of 2 the learners will develop and present a report that details the role of data analytics, the types of data available and the activity at each stage of a process to solve a particular data analytics problem. As part of the assessment process the learners analyse the significant ethical considerations and will reflect on their outputs and performance.

Assessment Type	Written Report	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	S1 Week 8	**Learning Outcome**	3,5
Duration in minutes	0		

Assessment Description
The learner will conduct a literature review based on a chosen topic and present this in a final report.

Assessment Type	Written Report	**% of Total Mark**	40
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	2,4,5
Duration in minutes	0		

Assessment Description
As part of a cross module project the learner will frame their work in the form of a research proposal. The report should specify a research question and hypotheses, should present the question in the context of current literature on the area, propose and justify a chosen methodology and should develop a feasible plan for completion of the work. The learner will include a reflective journal that will also be assesed.

No Project

No Practical

No Final Examination

Reassessment Requirement
No repeat examination *Reassessment of this module will be offered solely on the basis of coursework and a repeat examination will not be offered.*

DKIT reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full-time					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Deliver theory, principles and methods inc luding presentations by guest lecturers.	Every Week	2.00	2
Tutorial	Contact	Application of concepts and methods developed in lectures.	Every Week	1.00	1
Directed Reading	Non Contact	Reading of lecturer-recommended information sources.	Every Week	3.00	3
Independent Study	Non Contact	Independent work.	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	3.00

Workload: Part-time					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Deliver theory, principles and methods inc luding presentations by guest lecturers.	Every Week	2.00	2
Tutorial	Contact	Application of concepts and methods developed in lectures.	Every Week	1.00	1
Directed Reading	Non Contact	Reading of lecturer-recommended information sources.	Every Week	3.00	3
Independent Study	Non Contact	Independent work.	Every Week	2.00	2
				Total Weekly Learner Workload	8.00
				Total Weekly Contact Hours	3.00

Module Resources

Recommended Book Resources

John W Creswell. (2018), Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, Ed. 5. Sage Publications, [ISBN: 1506386768].

Leedy, P. D. and Ormrod, J. E.. (2016), Practical Research Planning and Design, 11 Ed.. Pearson, [ISBN: 978013374132].

Foster Provost & Tom Fawcett. (2013), Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking, O'Reilly Media, [ISBN: 1449361323].

Justin Zobel. (2015), Writing for Computer Science, 3rd. Edition. Springer-Verlag, [ISBN: 1447166388].

Fink, A. (2013), Conducting Research Literature Reviews, 4th Ed.. SAGE Publishing, [ISBN: 1452259496].

Leven, P. (2011), Excellent Dissertations! (Student-Friendly Guides),, Open University Press, [ISBN: 0335238610].

This module does not have any article/paper resources

Other Resources

Website, Empirical Research Methods for Computer Scientists,
http://www.cs.toronto.edu/~sme/CSC2130/

Web Resource, ACM Code of Ethics,
https://www.acm.org/binaries/content/ass ets/about/acm-code-of-ethics-and-profess ional-conduct.pdf

Website, Data Science Central,
https://www.datasciencecentral.com