Module: Data Analytics 371

Module name:	Data Analytics 371
Code:	DAL371
NQF level:	7
Type:	Core – Bachelor of Information Technology
Contact Time:	64 hours
Structured time:	10 hours
Self-directed time:	66 hours
Notional hours:	140 hours
Credits:	14
Prerequisites:	STA271

Purpose

This module will introduce students to the field of Data Science using state--of--the-art modelling, analysis and visualization techniques, emphasizing practical challenges involving complex real-world data and majoring more in exploring data, finding insights, and building dashboards and reports.

Outcomes

Upon successful completion of this module, the student will be able to:

- Demonstrate integrated knowledge of the key techniques and theory used in visualization, including data models, graphical perception and techniques for visual encoding and interaction.
- Apply a range of methods of enquiry in the discipline that contributes towards the understanding of how Cultures of Practice influence the way data may be collected, described, or formatted in order to align data management practices with those of the discipline and include the preservation of this data in supported research storage for both short- and long-term preservation in order to comply with data management mandates.
- Show Practical experience in building and evaluating visualization systems by reading and discuss research papers from the visualization literature.
- Develop and communicate Visualized data using any chosen BI tool and work with multiple visualizations
- Handle data and data visualizations in a manner that demonstrates an understanding of ethical, cultural, and legal considerations surrounding data shared for collaborative purposes including Create, edit, and shared content packs (i.e. data storage, citation, and protection).
- Design effective data visualizations in order to provide new insights into a research question or communicate information to the viewer.

Assessment

- Continuous evaluation of theoretical work through written assignments, formative, and a summative test.
- Continuous evaluation of practical work a project.
- Final assessment through a written examination.

Teaching and Learning

Learning materials

Prescribed Book

Database Architecture - IT without frontiers series

Additional Material

Learning activities

The teaching style is a mixture of the presentation of theoretical concepts, exercises, and discussions. It is a collaborative model with a practical approach, with four mandatory assignments and one project, which must be completed during the module.

Notional learning hours

Activity	Units	Contact Time	Structured Time	Self-Directed Time
Lecture		52.0		23.0
Formative feedback		8.0		
Project	1	4.0		9.0
Assignment	2			6.0
Test	4		8.0	16.0
Exam	1		2.0	12.0
		64.0	**10.0**	**66.0**

Syllabus

- Accessing and Retrieving Data
- Data Transformations
- Building BI Data Models
- Authoring BI Reports
- Creating BI Dashboards
- Authoring date intelligence metrics
- Parameterizing BI Solutions
- Applying Advanced Analytics and Custom Visuals
- Developing Solutions for System Monitoring and Administration
- Enhancing and Optimizing Existing BI Solutions
- Deploying and Distributing BI Content
- Integrating BI with Other Applications