

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking [here](#).

Module Code:	COM712
---------------------	--------

Module Title:	Data Analysis and Visualisation
----------------------	---------------------------------

Level:	7	Credit Value:	20
---------------	---	----------------------	----

Cost Centre(s):	GACP	JACS3 code:	I260
		HECoS code:	100755

Faculty	FAST	Module Leader:	Bindu Jose
----------------	------	-----------------------	------------

Scheduled learning and teaching hours	21 hrs
Placement tutor support	0hrs
Supervised learning eg practical classes, workshops	27 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total contact hours	48 hrs
Placement / work based learning	0 hrs
Guided independent study	152 hrs
Module duration (total hours)	200 hrs

Programme(s) in which to be offered (not including exit awards)	Core	Option
MSc Data Science and Big Data Analytics	✓	<input type="checkbox"/>

Pre-requisites
Studied COM736 Database systems and Data Analytics

Office use only

Initial approval: 22/07/2020	Version no:1
With effect from: 01/09/2020	
Date and details of revision:	Version no:

Module Aims
This module aims to explore the fundamental concepts of collecting, analysing and visualising data and to create data analysts who can identify patterns and display information from data of several sources. Student will explore various statistical methods and algorithms for data analysis. Students will be able to discover, analyse, visualise, and present data in a meaningful way that will harness the power of data for new insights as well as evaluate the legal, social and ethical impact of data analysis and its applications. Students will gain practical skills using a commercially available open source software (for example R Studio, HADOOP etc.) to apply data analysis and visualisation techniques to real world data analytical problems.

Module Learning Outcomes - at the end of this module, students will be able to	
1	Synthesise the fundamentals of various statistical techniques and algorithms
2	Analyse and interpret the Data Analytics Life Cycle.
3	Synthesise and apply advanced analytical theories and methods
4	Gain practical skills for using modern data analytical tools and techniques
5	Critically evaluate and apply appropriate analytic tools and techniques to analyse big data and present the knowledge

Employability Skills The Wrexham Glyndŵr Graduate	I = included in module content A = included in module assessment N/A = not applicable
CORE ATTRIBUTES	
Engaged	I/A
Creative	I
Enterprising	I
Ethical	I
KEY ATTITUDES	
Commitment	I
Curiosity	I/A
Resilient	
Confidence	I
Adaptability	
PRACTICAL SKILLSETS	
Digital fluency	I/A
Organisation	I/A
Leadership and team working	I
Critical thinking	I/A
Emotional intelligence	
Communication	I/A

Derogations

NONE

Assessment:**Indicative Assessment Tasks:**

The assessment will be in the form a portfolio of weekly tasks incorporating both theoretical and practical exercises. The tasks will provide an opportunity for the students to transfer the theoretical knowledge into practical applications, evaluate the legal, social and ethical implications of data analysis etc. These will involve weekly exercises focused on design and development activities, along with restricted response quizzes

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3,4,5	Portfolio	100%

Learning and Teaching Strategies:

The overall learning and teaching strategy will include a series of lectures and practical lab sessions. There will be a mix of supporting notes/along with directed study for students to complete as they work through the material and undertake the assessment tasks. The use of a range digital tool via the virtual learning environment together with additional sources of reading will also be utilised to accommodate learning styles.

Syllabus outline:

1. Overview statistical methods and algorithms
2. Overview of Data Analytics
3. Real time analytics
4. Data Analytics Life Cycle
5. Analytical Theory and Methods
6. Data Analysis and Visualisation Tools and Technologies (for e.g. HADOOP Data Analytics, R etc.)

Indicative Bibliography:**Essential reading**

EMC. (2015), Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data. Wiley

Other indicative reading

Isson, J.P. (2018), Unstructured Data Analytics - How to Improve Customer Acquisition, Customer Retention, and Fraud Detection and Prevention. CENGAGE Learning

Sedkaoui, S. (2018), Data Analytics and Big Data. Wiley

Journals (available electronically through the library)

ACM Digital Library

IEEE Xplore