



<b>Unit Title</b>	Programming for Data Analysis (blended)
<b>FHEQ Level</b>	Level 5
<b>Unit Code</b>	DGM20205
<b>Credit Value</b>	30
<b>Unit Type</b>	Subject

Learning Hours			
Staff – Student Contact Hours		Independent Study Hours	
Classes	45	Independent study	190
Supervised access to Ravensbourne resources	30	Preparation for assessment	35
<b>Total</b>		<b>300</b>	

### Unit Description

Digital marketing can only be effective if you have good data analysis tools available. This unit covers the readily available tools for data analysis and also develops an understanding of developing tailor-made tools which can analyse datasets of an organisation on demand.

There are millions of data elements that can provide useful information to an organisation. Data analysis is conducted at every level of a modern organisation ranging from healthcare statistics to global warming and mobile networks.

It is imperative for organisations to be able to evaluate their data and take strategic decision after extracting invaluable information from these data sets.

The unit will look at web-based databases and how connectivity can be established to generate the required reports. Students will have the opportunity to develop their skills in modern programming languages and databases such as PHP, JavaScript, NoSQL and MySQL etc.

After successful completion of this unit, you will be able to generate reports, visuals, tables and summaries from a dataset.

Along with practical activities, this unit will provide theoretical foundations of data analysis and various techniques to provide the same information in different visual formats.

The Five Principles underpin the Mindsets and Skillsets Manifesto and are the foundation upon which all course curriculum frameworks and unit specifications are based. The relevant Principles as stated below have been mapped against the Learning Outcomes relevant to each course unit and at each level (see Programme Specifications for full description of the Five Principles):

1. Cultivate / Where the individual thrives.
2. Collaborate / Where disciplines evolve.
3. Integrate / Where education engages industry.
4. Advocate / Where purpose meets practice.
5. Originate / creativity meets technology.

### Unit Indicative Content

- Understanding customer data
- Cleaning, formatting and interrogating the data
- analysing and evaluating the results
- Available CRMs and custom databases
- Vendor specific and open source tools
- Introductory Maths for data analysis
- Types of charts, graphs, infographics, dashboards
- Creative forms of data visualisation
- Advantages and disadvantages of data visuals
- Database systems
- Serverless computing
- Metadata repositories
- Cloud storage
- Elastic Search
- Analysis of real-time streaming data

### Unit Aims

1. To develop an understanding of databases and data analysis tools
2. To evaluate available Customer Relationship Management Systems
3. To develop skills in programming with appropriate tools
4. To develop a database system and generate customised reports
5. To critically evaluate various methods of data presentation
6. To evaluate the data processing techniques and their limitation

## Unit Learning Outcomes

### LO 1 Research/Inspiration

Analyse and interpret information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.

Related Principle: ORIGINATE

### LO 2 Concept/Ideation

Analyse research materials leading to the generation of the ideation and concepts that inform and lead to project development.

Related Principle: ORIGINATE

### LO 4 (Pre) Production

Employ relevant knowledge of production skills alongside a grasp of the creative potential of a selection of processes, materials and methods that inform creative and academic practice.

Related Principle: COLLABORATE

LO 6 Critical and creative mindsets Analyse conceptions of diverse practice and use this to inform a course of action

Related Principle: ORIGINATE

## Learning and Teaching Methods

This unit will be delivered using a combination of:

- Lectures / Seminars (online / face to face or recorded)
- Online activities
- Self-directed independent study
- Peer learning, group discussion, guest speakers
- Hybrid delivery approach

## Assessment methods and tasks

Assessment tasks	Weighting (%) <i>(one grade or multi-grade unit)</i>
Development Log	50%
Artefact presentation	50%

### Indicative Assessment Criteria

1. Develop a database driven CRM system for a real or fictitious business (LO1, LO2)
2. Evaluate various CRM tools and compare with your artefact (LO1)
4. Generate customised CRM reports based on real or dummy data (LO4)
5. Present data in different visual formats and evaluate their advantages and disadvantages (LO2)
6. Apply data processing techniques on your dataset and discuss their limitations (LO6)

### Essential Reading list

Nixon, Robin. Learning PHP, MySQL & JavaScript: with JQuery, CSS & HTML5. O'Reilly Media, Inc., 2018.

### Recommended reading list

Magnuson, Lauren. Data Visualization: a Guide to Visual Storytelling for Libraries. Rowman; Littlefield, 2016.

Döbler, Mario, and Tim Grössmann. Data Visualization with Python: Create an Impact with Meaningful Data Insights Using Interactive and Engaging Visuals. Packt Publishing, 2019.