# **Solent University Module Descriptor**

## **Module Code:** COM418 **Module title:** Data Analysis, Tools and Application

### **Why is this module important?**

### In the digital era the amount of data managed by companies is tremendous. New tools are required to process this data and extract knowledge.

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### The module takes the students through the data life cycle process; collecting, cleaning, processing, analysis and interpretation. Many different technologies will be used in this process.

**What you will learn**

The key areas of study within this module are:

* Statistical analysis
* Data collection and retrieval.
* SQL and NOSQL Databases
* Data Mining Algorithms such as K-means clustering, Association rules, Regression, SVM, Decision trees, classifiers, time series, text analytics
* Data Visualisation
* health informatics
* In formation reporting and data presentation

### **How you will learn**

Learning will take place in small group tutorials within IT labs. You will work collaboratively and be given tasks and problems to solve.

The assessment consists of small projects to conduct data analysis on a chosen domain, some of which may have potential social impact (for example: environment, homelessness, and internationalisation).

Brainstorming, research, separation of concerns, rational design, software development, retrieval, data mining and analysis, visualisation and reports are performed by the groups.

The projects end with a presentation by the groups to the class.

### **How much time the module requires:**

This module is a 20-credit module. This means you are expected to undertake 200 hours of study time over the duration of the module. This time should be divided between class time, directed learning tasks, your own independent study and assessments. Your tutor will offer you guidance on how you should best manage your study time on this module

### **How you will be assessed**

#### **Tasks which help you to learn and prepares you for summative tasks (Formative):**

The weekly tasks will be structured to help build you up towards completing your assessment. The IT lab delivered sessions will be led by the tutor and will support your learning and problem-solving abilities. You will work in groups to problem solve and devise appropriate solutions.

The ongoing feedback you receive will help inform your work on the assessment and allow for reflection.

#### **Tasks which count towards your degree (Summative):**

You will receive a scenario which you must analyse and devise an appropriate testing strategy in order to ensure requirements are met and that the software will be as robust and reliable as possible.

You will also develop tests using tools that you will select based on what you feel is most appropriate for your testing strategy and evaluate the effectiveness of the methods and tools you selected.

Students will receive a grade appropriate to their contribution of the group.

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#### **When assessment does not go to plan?**

#### If you are referred/deferred in the assignment you will rework your report in the light of summative and supportive feedback.

#### **What you will be able to do after the module**

### Identify appropriate tools and techniques for data analysis, data visualisation and presentation.

### Carry out small-scale research, information gathering and data collection to generate knowledge to support the project with some guidance.

### Discuss the use of relevant data analysis tools.

### Collaborate in groups on projects and work on each step of the data life cycle.

### Summarise and present the results of data analysis to a range of stakeholders making recommendations.

### Communicate and summarise and present the results of data analysis to a range of stakeholders making recommendations.

### **How this relates to the dimensions of Solent’s Real-world curriculum framework**

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| --- | --- | --- |
| **Dimensions** | **How students learn** | **How students are assessed** |
| Students are challenged to think in critical, creative and applied ways | Students learn to apply the appropriate tools for the task | Assignment confirms their knowledge and understanding |
| Students are inspired to do research through inquiry, curiosity and problem-solving | Students learn to apply research and apply the appropriate tools for the task | Apply research to the assignment |
| Students face outward to the community, industry and the global environment | Students learn to understand how statistics are important for understanding of world data | Students present the data analysis in an appropriate manner |

### **Summative assessment details:**

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| AE1  | Weighting:  | 70%  |
|   | Assessment type:  | Individual Report  |
|   | Aggregation:  | Aggregated to AE2   |
|   | Length/duration:  | 2000 words  |
|   | Online submission:  | Yes  |
|   | Grade marking:  | Yes  |
|   | Anonymous marking:  | No  |

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| --- | --- | --- |
| AE2  | Weighting:  | 30%  |
|   | Assessment type:  | Project Presentation plus notes  |
|   | Aggregation:  | Aggregated to AE1   |
|   | Length/duration:  | 5 minutes per person plus 5 minutes questions to the group |
|   | Online submission:  | Yes  |
|   | Grade marking:  | Yes  |
|   | Anonymous marking:  | No  |

### Module Author: Dr Cedric Mesnage

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| Module Title: Data Analysis, Tools and Application  |
| Credit Points: | 20 | Module Code: | COM418 |
| FHEQ Level: | 4 | School/Service | School of Media Arts and Technology |
| Module Delivery Model: | CD | Max/Min student numbers |  |
| Module Leader: | Dr Cédric Mesnage |
| HECOS code | 100374 |

### **Module change history:**

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| --- | --- | --- | --- |
| Module Approved/Year Implemented/Code | July 2019 | 2020/21 | COM418 |
| Module modified/Year Implemented/Code |  |  |  |