1. **Title of the module**

LABS612 Introduction to Data Analytics

1. **School or partner institution which will be responsible for management of the module**

Centre for Higher and Degree Apprenticeships

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 6

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTs)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Flexible delivery model

Autumn and/or Spring and/or Summer

1. **Prerequisite and co-requisite modules**

N/A

1. **The programmes of study to which the module contributes**

BSc (Hons) in Applied Bioscience

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**

8.1 Apply statistical analysis to scientific data.

8.2 Demonstrate a clear understanding of the basic tools for data manipulation.

8.3 Critically evaluate problems found in scientific data.

8.4 Predict new data values via regression models.

8.5 Critically discuss clustering in data.

8.6 Critically evaluate the ethics and risks of sharing data.

1. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**

9.1 Develop and demonstrate an ability to work and communicate effectively with others.

9.2 Analyse, evaluate and correctly interpret data.

9.3 Present and communicate data effectively.

9.4 Obtain and use information from a variety of sources as part of self-directed learning.

9.5 Manage their time and use their organisation skills within the context of self-directed learning.

1. **A synopsis of the curriculum**

The module gives an advanced introduction into data analytics to provide the skills needed to become more independent in research. It will describe how to apply statistical analysis to scientific data, including hypothesis testing, distribution, and probability, and how to represent data effectively in graph format. It will cover a range of basic tools for data manipulation, including those needed to visualise, sort, count, and re-format data, and for finding clusters in data. It will also cover how to tackle problematic data, such as errors and consistency, and regression models to predict new data values. It will also discuss the ethics and risks associated with sharing data.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Song, P. (2007) Correlated Data Analysis: Modelling, Analytics, and Applications. Springer.

Satyanarayana, C. (2019) Computational Intelligence and Big Data Analytics in Bioinformatics. Springer.

Wong, C. (2016) Big Data Analytics in Genomics. Springer.

1. **Learning and teaching methods**

Blended distance learning:

Contact Hours: 100 hours

Private Study Time: 50 hours

Total Learning Time: 150 hours

1. **Assessment methods**
   1. Main assessment methods

Coursework assignments

Weighting:

Essay Assignment 50% - 1000 words

Portfolio 50% - composed of 5 individual assignments where topics are applied to the workplace

The pass mark for this module is 40%.

13.2 Reassessment methods

Like for like

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Private Study** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Teaching | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |
| Work based experience |  | **x** |  |  |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |
| Essay (1000 words) | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Portfolio | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

1. **Inclusive module design**

The School/Collaborative Partner recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Blended distance learning – delivered from Medway or Canterbury campus

1. **Internationalisation**

International vocation is an important part of Applied Bioscience. With regards to the intended learning outcomes, in particular 8.1, 8.3, 8.6, the target learning outcomes within this module are applicable worldwide as part of the universal principles of analysing scientific data. Also, the syllabus covers key universal statistical techniques that are applicable to scientific research, worldwide. Furthermore, this module has been developed with global employers to have an international focus.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 05/10/20 | Minor | Sep 20 | 13 | No |
|  |  |  |  |  |