UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Principles Of Bioinformatics
Module Code	BIS7017-B
Academic Year	2020/1
Credits	20
School	School of Chemistry and Biosciences
Subject Area	Biomedical Science
FHEQ Level	FHEQ Level 7
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Online Lecture (Synchronous)	2
Practical Classes or Workshops	33
Tutorials	5
Directed Study	160

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

To provide a comprehensive understanding of bioinformatics and its application to Biology. To develop student autonomy in the use of web-based platforms for analysing and annotating biomedical big data.

Outline Syllabus

Data standards and formats in bioinformatics Galaxy workbench and its application in biomedical sciences, Galaxy workflows, tools and histories, quality control analysis, analysis of RNA sequencing data, analysis of ChIP-Seq data, identification of the genetic variation using the exome sequencing, transcriptomics, background and application of specialist databases and genome browsers.

Learning Outcomes	
Outcome Number	Description
01	1 Demonstrate knowledge and understanding of current and emerging technologies in bioinformatics and their role in research and healthcare
02	2 Develop detailed knowledge and understanding of applied bioinformatics techniques
03	3 Undertake critical thinking for design of bioinformatics analysis
04	4 Employ web-based system (i.e. Galaxy) to perform bioinformatics analysis
05	5 Employ specialist databases and genome browsers to extract, integrate and visualise data
06	6 Demonstrate and ability to interpret, synthesise and critically evaluate complex issues within the field of bioinformatics

Learning, Teaching and Assessment Strategy

Teaching sessions will include computer workshops, lectures and tutorials.
Knowledge and understanding-based elements will be assessed using a portfolio in which students can evidence the approach they have taken while working on tasks, and evaluate their strategy (LO1-3). Learning outcomes 3-5 will be assessed by computer assessment - bioinformatics analysis of data in Galaxy. Learning outcome 6 will be assessed by oral presentation to an assessment panel and peer group.

Mode of Assessment				
Type	Method	Description	Length	Weighting
Summative	Presentation	Presentation of e-portfolio (20 minutes)	20 mins	20%
Summative	Coursework	E-Portfolio in Canvas with collection of evidence showing the bioinformatics analysis performed by students (2000 words	N/A	40%
Summative	Computer-based assessment	Bioinformatics analysis of data in Galaxy (2 hours)	2 hour	40%
Formative	Presentation	Presentation of e-portfolio	10 min	N/A
Formative	Coursework	Draft e-portfolio in Canvas, with collection of evidence showing bioinformatics analysis performed by students	500 words or equivalent	N/A
Formative	Computer-based assessment	Bioinformatics analysis of data in Galaxy	2 hours	N/A

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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