STUDENT AND ACADEMIC SERVICES

UWE Bristol | University of the West of England

MODULE SPECIFICATION

Part 1: Information			
Module Title	Research and Diagnostic Methodologies		
Module Code	USSJYT-30-M	Level	Level 7
For implementation from	2021-22		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Health & Applied Sciences	Field	Applied Sciences
Department	HAS Dept of Applied Sciences		
Module Type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co-requisites	None		
Module Entry Requirements	None		
PSRB Requirements	None		

Part 2: Description

Educational Aims: See Learning Outcomes

Outline Syllabus:
Core technology relevant to all students reading for MSc in Biomedical Sciences:
Molecular biology
Electrophoresis
Microscopy

Students also learn methods that are relevant for their specialism. These are delivered as specialist methods such as:
Immunohistochemistry, immunocytochemistry, in-situ hybridisation
Immunoassays
Flow cytometry
Spectroscopy
Chromatography
Point of care testing

Principles of good experimental design.
Methods for the assessment of data quality and method validation.

Descriptive statistics.
Inferential statistics and hypothesis testing.
Statistical significance, variance, regression, covariance.
Selecting the appropriate statistical method.

Effective literature searching strategies.
Critical reading skills.
Scientific writing skills.
The peer review process as applied to research papers and grant applications.

Evidence based medicine.
Introduction to bioethics.
An understanding of how Ethics Committees work.

Teaching and Learning Methods: The module will have a mixture of traditional lectures to cover the core scientific principles, supported by talks from researchers on the use of the core methods in the research sector. Coverage of the use of the scientific methods in the diagnostic sector will be supported by video presentations by diagnostic sector staff and supported by visits to diagnostic laboratories where possible.

The statistics teaching will be by computer-based workshops delivered by expert staff.

Module is delivered in the first semester to provide theoretical underpinning to the Research Project module

---

Part 3: Assessment

This first semester module includes an exam – in this case a time constrained critical appraisal of a research paper, provided in advance. The summative coursework is a statistical analysis activity reflecting the importance of developing statistical skills ahead of the project.

During this module students undertake a formative activity in the form of a project proposal - this underpins the project module and will required for completion of the Faculty research governance process before a student starts in the laboratory. The feedback from this formative activity will directly support project module assessment.

First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	Online exam with a 24-hour window and a 3000 word limit - paper being reviewed to be pre-released to the students 48 hours before the examination time.
Set Exercise - Component B		50 %	Data interpretation exercise
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online exam (24-hour window) - paper for review to be released 48 hours ahead of exam time
Set Exercise - Component B		50 %	Data interpretation exercise

Part 4: Teaching and Learning Methods	
Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Show an in-depth understanding of the theory that underpins a range of scientific methods	MO1
Demonstrate an awareness of the use of a range of scientific methods in both research and diagnostic settings including the evaluation of their role and limitations	MO2
Review critically the scientific literature (including national standard methods and standard operating procedures) in relation to biomedical science methodological choices	MO3
Demonstrate a critical awareness of the principles of good experimental design in biomedical research	MO4
Select and perform appropriate statistical techniques for the analysis of experimental data	MO5

Contact Hours		
	Independent Study Hours:	
	Independent study/self-guided study	228
	Total Independent Study Hours:	228
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	72
	Total Scheduled Learning and Teaching Hours:	72
	Hours to be allocated	300
	Allocated Hours	300

Reading List	*The reading list for this module can be accessed via the following link:* https://rl.talis.com/3/uwe/lists/25315E4F-6ABD-9B54-FF3B-3549F8B7CC5D.html?lang=en-GB&login=1

Part 5: Contributes Towards

This module contributes towards the following programmes of study:

Biomedical Science [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Medical Microbiology) [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Medical Genetics) [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Immunology) [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Haematology) [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Clinical Biochemistry) [Sep][FT][Frenchay][1yr] MSc 2020-21

Biomedical Science (Cellular Pathology) [Sep][FT][Frenchay][1yr] MSc 2020-21