

MODULE SPECIFICATION

Part 1: Information			
Module Title	Research Skills and Laboratory Project		
Module Code	USSKNN-30-2	Level	2
For implementation from	September 2018		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Health and Applied Sciences	Field	Applied Sciences
Department	Applied Sciences		
Contributes towards	FdSc Biological Laboratory Sciences		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><u>This module will cover the following topics within molecular biology field:</u></p> <ul style="list-style-type: none"> • Design appropriate experimental procedures to carry out a research project in a biological laboratory. The design of experiments will include choosing the most appropriate methodologies, the use of controls, preparing materials and collection of data. Expectation of the output of experiments will be discussed to show how the proposed use of statistical analysis should be used to inform the structure of the experimental design. • Planning and management of a research project will be considered, including health and safety, ethics, animal welfare and use of genetically modified organisms. Discussions will include how to carry out risk assessments for biological sciences work, both in the laboratory and in the field. The use of MSDS information and COSHH forms for risk assessment will be included. Discussions on ethics and the handling of human tissues will be included. • Determination and selection of the appropriate statistical analysis will be employed to interpret the data and carry out appropriate analysis correctly. Discussion will include explanation of different distribution patterns and the types of data set that may be generate. A variety of statistical analysis methods will be covered, including t-test and two- way and multi-way ANOVA. • Practical approach will enable students to set up experiment, collect appropriate data, analyse and evaluate data appropriately and present the study to a wider audience. • Disseminate the outcome of studies in a variety of ways to a range of audiences. Dissemination in the form of reports, posters, press releases etc. will be discussed and student will be given the opportunity to plan such dissemination tools. <p>This module aims to deliver specialist knowledge through taught lectures, inductive tutorials, seminars and practical sessions to promote application of knowledge acquired, analytical and problem-solving skills. Student learning will be further supported through both UCW and UWE E-Learning Environment, with provision of materials and activities to guide independent study.</p>

Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table below.

Part 3: Assessment

The assessment strategy has been designed to support and enhance the development of subject-based knowledge and practical skills, whilst ensuring that the learning outcomes are achieved.

Component A is an oral exam (viva). The students will produce a group research proposal that should present their idea for a project as well as demonstrating their ability to understand the research process.

Component B will consist of the student undertaking an agreed research project utilising the skills that they have developed during the course.

Opportunities for formative assessment and feedback are built into teaching and practical sessions, through discussion and evaluation of current research and review of past exam papers. Students are provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the extensive support materials supplied through the E-Learning Environment.

All work is marked in line with the UWE generic assessment criteria and conforms to university policies for the setting, collection, marking and return of student work. Assessments are described in the module handbook that is supplied at the start of module.


Identify final timetabled piece of assessment (component and element)	Component B	
% weighting between components A and B (Standard modules only)	A:	B:
	40	60

First Sit

Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. Oral examination (20 minutes)	100
Component B Description of each element	Element weighting (as % of component)
1. Research Project (3500 words)	100

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. Oral examination (20 minutes)	100
Component B Description of each element	Element weighting (as % of component)
1. Research Project (3500)	100

Part 4: Teaching and Learning Methods											
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> • Design appropriate experimental procedures to carry out work in a biological laboratory or as field work (A, and B) • Evaluate and discuss research methodology within the biosciences field (B) • Apply appropriate statistical analysis models.(B) • Apply effective laboratory and /or field procedures to gather a set of data (B) • Disseminate the outcome of studies in a variety of ways to a range of audiences (A and B) • Evaluate and critically discuss previously published research (B) • Develop team-work skills in a research environment, including respecting the views of others, identification of collective goals and negotiating (A and B) 										
Key Information Sets Information (KIS)	<p><u>Key Information Set - Module data</u></p> <p>Number of credits for this module 30</p>										
Contact Hours	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Hours to be allocated</th> <th style="width: 20%;">Scheduled learning and teaching study hours</th> <th style="width: 20%;">Independent study hours</th> <th style="width: 20%;">Placement study hours</th> <th style="width: 30%;">Allocated Hours</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">300</td> <td style="text-align: center;">90</td> <td style="text-align: center;">210</td> <td style="text-align: center;">0</td> <td style="text-align: center;">300</td> </tr> </tbody> </table> <div style="text-align: right; margin-top: 5px;"></div>	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	300	90	210	0	300
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300	90	210	0	300							
Total Assessment	<p>The table below indicates as a percentage the total assessment of the module which constitutes a;</p> <p>Written Exam: Unseen or open book written exam Coursework: Written assignment or essay, report, dissertation, portfolio, project or in class test Practical Exam: Oral Assessment and/or presentation, practical skills assessment, practical exam (i.e. an exam determining mastery of a technique)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th colspan="2" style="text-align: left;">Total assessment of the module:</th> </tr> </thead> <tbody> <tr> <td style="width: 80%;">Written exam assessment percentage</td> <td style="text-align: center;">0%</td> </tr> <tr> <td>Coursework assessment percentage</td> <td style="text-align: center;">60%</td> </tr> <tr> <td>Practical exam assessment percentage</td> <td style="text-align: center;">40%</td> </tr> <tr> <td></td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>	Total assessment of the module:		Written exam assessment percentage	0%	Coursework assessment percentage	60%	Practical exam assessment percentage	40%		100%
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Written exam assessment percentage	0%										
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Practical exam assessment percentage	40%										
	100%										
Reading List	<p>The following books are recommended as it covers most of the module material at an appropriate level:</p> <ul style="list-style-type: none"> • Jones, A., Reed,R., & Weyers, J. <i>Practical Skills in Biology</i>. Harlow: Pearson Education. • Brown, J. K. (2011) <i>Biotechnology: a laboratory skills course</i>. Bio-Rad Laboratories, Inc: California. 										

Extensive notes will be provided via blackboard on the scientific topics. Links to useful and credible websites will also be provided.

The students are also advised to consult the basic scientific texts in UCW, Frenchay and Glenside libraries, of which the following is a representative sample:

The latest editions of:

- Jones, A. Reed, R., Weyers, J. *Practical Skills in Biology*. Harlow: Pearson Education
- Lodish *et al.* *Molecular Cell Biology*. New York: W.H. Freeman.
- Alberts *et al.* *Molecular Biology of the Cell*. Abingdon: Garland Publishing.

• Plus appropriate use of relevant primary and review journals and www based resources. These will include:

Trends in... series of journals

Current Opinion... series of journals

Frontiers in... series of journals

Nature

Nature Reviews

PLoS

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First SUVP Approval Date	17/5/2018			
Revision Approval Date		Version	1	APDG approval 26/1/2018