

MODULE SPECIFICATION

Part 1: Information			
Module Title	Laboratory skills and data analysis for biosciences		
Module Code	USSKNH-30-1	Level	1
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>This is a skills based module and aims to support and enhance the development of both subject-based and transferable key skills. Specifically this module will introduce the following:</p> <p><u>Laboratory skills:</u> basic laboratory skills such as making up solutions, pipetting, titrating and use of microscopes and other specialist equipment. Additional activities may include: spectrophotometry; acid base theory and buffer solutions; gel electrophoresis and PCR.</p> <p><u>Laboratory management skills, data collection and analysis:</u> health and safety, control of substances hazardous to health (COSHH), planning and carrying out an experiment, resource management, collecting experimental data and interpretation of data, data analysis and presentation.</p> <p><u>Analytical and Maths skills:</u> application of mathematical calculations in biosciences, such as scientific equations and formulae, exponential and logarithmic functions, equations of growth and decay, reaction rates and kinetics.</p> <p><u>Maths skills and data analysis:</u> appreciation of variability in scientific data and experimental uncertainty, testing of hypothesis and making decisions, analysing and interpreting scientific data using IT software.</p>
Part 3: Assessment
<p>The assessment strategy has been designed to support and enhance the development of key laboratory and transferable skills which will enable graduates to be confident and competent within a laboratory based work place.</p> <p>The coursework comprises an integrated assignment (portfolio) which will provide an opportunity for students to demonstrate their ability to apply analytical, data analysis and problem solving skills.</p>

Component A is a three hour open assessed practical. The practical assessment will require students to demonstrate appropriate laboratory techniques and methodology; adhere to health and safety guidance; undertake calculations; collect, process and manipulate laboratory data; draw and display data; analyse and evaluate data. The controlled practical assessment replicates the world of work where samples and data need to be analysed and interpreted correctly within a short deadline.

Formative feedback is available to students throughout the module through group discussions particularly in tutor group sessions. Students are provided with formative feed-forward for their practical assessment through continuous practical sessions throughout the module 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 A	
% weighting between components A and B (Standard modules only)	A:	B:
	50	50
First Sit		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. Group practical assessment (3 hour)	100	
Component B		
Description of each element	Element weighting (as % of component)	
1. Portfolio of evidence workbook	100	
Resit (further attendance at taught classes is not required)		
Component A (controlled conditions) Description of each element	Element weighting (as % of component)	
1. Practical assessment (3 hour)	100	
Component B		
Description of each element	Element weighting (as % of component)	
1. Problem solving exercise	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"> • Perform basic scientific calculations relevant to the biological sciences (A, B) • Undertake a range of standard laboratory procedures by using appropriate equipment in a safe manner (A) • Present, analyse and interpret laboratory data using appropriate mathematical, statistical and communication skills (A,B) • Critically evaluate laboratory data and suggest appropriate improvements (B) 	

	<ul style="list-style-type: none"> Understand COSHH and Health and Safety regulations within a laboratory setting (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"> <thead> <tr> <th>Hours to be allocated</th> <th>Scheduled learning and teaching study hours</th> <th>Independent study hours</th> <th>Placement study hours</th> <th>Allocated Hours</th> </tr> </thead> <tbody> <tr> <td>300</td> <td>96</td> <td>204</td> <td>0</td> <td>300</td> </tr> </tbody> </table> 	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	300	96	204	0	300
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300	96	204	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"> <thead> <tr> <th colspan="2">Total assessment of the module:</th> </tr> </thead> <tbody> <tr> <td>Written exam assessment percentage</td> <td>0%</td> </tr> <tr> <td>Coursework assessment percentage</td> <td>50%</td> </tr> <tr> <td>Practical exam assessment percentage</td> <td>50%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </tbody> </table>	Total assessment of the module:		Written exam assessment percentage	0%	Coursework assessment percentage	50%	Practical exam assessment percentage	50%		100%
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	100%										
Reading List	<p>The following book is 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. <p>Extensive notes will be provided via blackboard on the scientific topics. Links to useful and credible websites will also be provided.</p> <p>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:</p> <p>The latest editions of:</p> <ul style="list-style-type: none"> Currell, G. and Downman, A.A. <i>Essential Mathematics and Statistics for Science</i>. Chichester: Wiley-Blackwell. Millican, P. and Heritage, J. <i>Studying Science: A Guide to Undergraduate Success</i>. New Delhi: Viva Books. Cottrell, S. <i>The Study Skills Handbook</i>. Basingstoke: Palgrave Macmillan. Cann, A. <i>Maths from Scratch for Biologists</i>. New York: John Wiley. Dytham, C. <i>Choosing and Using Statistics</i>. Oxford: Blackwell. 										

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