MODULE SPECIFICATION

Part 1: Information			
Module Title	Research Skills and Laboratory Project		
Module Code	USSKNN-30-2	Level	2
For implementation from	September 2020		
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, compulsory		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

This module will cover the following topics within the molecular biology field:

- Designing of 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.
- Planning and management of a research project will be considered, including health and safety, ethics 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.
- Determination and selection of the appropriate statistical analysis will be employed to interpret the data and carry out appropriate analysis correctly.
- Practical approaches, which will enable students to set up experiments, collect appropriate data, analyse and evaluate data appropriately and present the study to a wider audience.

This module aims to deliver specialist knowledge through taught lectures, seminars and practical sessions to promote application of knowledge acquired and analytical and problem-solving skills.

Independent learning includes hours engaged with essential reading around the subject, project preparation and completion. .

Generic Graduate Skill	*Specific strand (eg presentation) - Optional*	Introduced	Developed	Evidenced
1. Communication	Written and oral communication [A, B], team work [A, B]	☐	☐	☒
2. Professionalism	Reflective practice, team work, lab work [A, B]	☐	☐	☒
3. Critical Thinking	Project development, evaluation and reflective practice [A, B]	☐	☐	☒
4. Digital Fluency	Digital assignments [A, B]	☐	☐	☒
5. Innovative and Enterprising	Project development, evaluation and reflective practice [A, B]	☐	☒	☐
6. Forward Looking	Project development, evaluation and reflective practice [A, B]	☐	☒	☐
7. Emotional Intelligence	Project development, team work and reflective practice [A, B]	☐	☒	☐
8. Globally Engaged		☐	☐	☐

Part 3: Assessment: Strategy and Details

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 a *viva voce*. Students will work in a team to produce a group research proposal. Students will then individually present a group research proposal in a poster format that demonstrates their understanding of the research process. The poster presentation will include extensive discussions in a viva format.

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 feedback are built into teaching and practical sessions, through discussion, analysis of collected data and evaluation of current research.

Identify final timetabled piece of assessment (component and element)	**Component B**

% weighting between components A and B (Standard modules only)	**A:** 30	**B**: 70

First Sit	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Viva voce (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. Viva voce (20 minutes)	100
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Research Project (3500 words)	100

Part 4: Learning Outcomes & KIS Data

Learning Outcomes	On successful completion of this module students will be able to: • 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 effective laboratory and /or field procedures to gather a set of data and apply appropriate statistical analysis models (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)	**Key Information Set - Module data** *Number of credits for this module*: 30 Hours to be allocated: 300; Scheduled learning and teaching study hours: 90; Independent study hours: 210; Placement study hours: 0; Allocated Hours: 300

Contact Hours Total Assessment	The table below indicates as a percentage the total assessment of the module which constitutes a; **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) Total assessment of the module: Written exam assessment percentage 0% Coursework assessment percentage 70% Practical exam assessment percentage 30% 100%
Reading List	The following books are recommended as it covers most of the module material at an appropriate level: • Jones, A., Reed, R., & Weyers, J. *Practical Skills in Biology*. Harlow: Pearson Education. • Brown, J. K. (2011) Biotechnology: a laboratory skills course. 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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a change goes to CAP				