



MODULE SPECIFICATION

| Part 1: Information | | | |
|---------------------------|---|--------------------|------------------|
| Module Title | Laboratory Skills and Data Analysis for Biosciences | | |
| Module Code | USSKNH-30-1 | Level | Level 4 |
| For implementation from | 2020-21 | | |
| 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 | | |

| Part 2: Description |
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| <p>Educational Aims: This is a skills based module and aims to support and enhance the development of both subject-based and transferable key skills.</p> <p>Outline Syllabus: Specifically this module will introduce the following:</p> <p>Laboratory skills: 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>Laboratory management skills, data collection and analysis: 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>Analytical and Maths skills: 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>Maths skills and data analysis: appreciation of variability in scientific data and experimental</p> |

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uncertainty, testing of hypothesis and making decisions, analysing and interpreting scientific data using IT software.

Teaching and Learning Methods: See Learning Outcomes

Part 3: Assessment

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.

Component A is an online individual data analysis assessment to be completed within a 24 hour window. The assessment will require students to process, display, analyse and evaluate data. The controlled practical assessment replicates the world of work where data need to be analysed and interpreted correctly within a short deadline.

Component B is a lab book comprised of a portfolio of laboratory notes and discussions, based on the practical experiments carried out during laboratory sessions. The practical portfolio will provide an opportunity for students to demonstrate their ability to apply analytical, data analysis, evaluative and problem solving skills. This assessment will also provide essential practical experience during which students will develop laboratory skills.

Formative feedback is available to students throughout the module during group discussions and practical laboratory sessions. Students are provided with formative feed-forward for their practical assessment through continuous practical sessions and through the extensive support materials supplied.

| First Sit Components | Final Assessment | Element weighting | Description |
|---------------------------------|------------------|-------------------|--|
| Online Assignment - Component A | ✓ | 50 % | Online data analysis assessment (24 hours) |
| Portfolio - Component B | | 50 % | Portfolio of evidence (lab book) |
| Resit Components | Final Assessment | Element weighting | Description |
| Online Assignment - Component A | ✓ | 50 % | Online data analysis assessment (24 hours) |
| Set Exercise - Component B | | 50 % | Problem solving exercise |

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| Part 4: Teaching and Learning Methods | | | | | | | | | | | | | | | | | |
|---|---|---------------------------------|------------------|---|-----|---|-----|---|-----|--|-----|---|----|------------------------------|-----|------------------------|-----|
| Learning Outcomes | <p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Perform basic scientific calculations relevant to the biological sciences</td> <td>MO1</td> </tr> <tr> <td>Undertake a range of standard laboratory procedures by using appropriate equipment in a safe manner</td> <td>MO2</td> </tr> <tr> <td>Present, analyse and interpret laboratory data using appropriate mathematical, statistical and communication skills</td> <td>MO3</td> </tr> <tr> <td>Critically evaluate laboratory data and suggest appropriate improvements</td> <td>MO4</td> </tr> </tbody> </table> | Module Learning Outcomes | Reference | Perform basic scientific calculations relevant to the biological sciences | MO1 | Undertake a range of standard laboratory procedures by using appropriate equipment in a safe manner | MO2 | Present, analyse and interpret laboratory data using appropriate mathematical, statistical and communication skills | MO3 | Critically evaluate laboratory data and suggest appropriate improvements | MO4 | | | | | | |
| Module Learning Outcomes | Reference | | | | | | | | | | | | | | | | |
| Perform basic scientific calculations relevant to the biological sciences | MO1 | | | | | | | | | | | | | | | | |
| Undertake a range of standard laboratory procedures by using appropriate equipment in a safe manner | MO2 | | | | | | | | | | | | | | | | |
| Present, analyse and interpret laboratory data using appropriate mathematical, statistical and communication skills | MO3 | | | | | | | | | | | | | | | | |
| Critically evaluate laboratory data and suggest appropriate improvements | MO4 | | | | | | | | | | | | | | | | |
| Contact Hours | <table border="1"> <thead> <tr> <th colspan="2" style="text-align: left;">Independent Study Hours:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Independent study/self-guided study</td> <td style="text-align: center;">210</td> </tr> <tr> <td style="text-align: right;">Total Independent Study Hours:</td> <td style="text-align: center;">210</td> </tr> <tr> <th colspan="2" style="text-align: left;">Scheduled Learning and Teaching Hours:</th> </tr> <tr> <td style="text-align: center;">Face-to-face learning</td> <td style="text-align: center;">90</td> </tr> <tr> <td style="text-align: right;">Total Scheduled Learning and Teaching Hours:</td> <td style="text-align: center;">90</td> </tr> <tr> <td style="text-align: left;">Hours to be allocated</td> <td style="text-align: center;">300</td> </tr> <tr> <td style="text-align: left;">Allocated Hours</td> <td style="text-align: center;">300</td> </tr> </tbody> </table> | Independent Study Hours: | | Independent study/self-guided study | 210 | Total Independent Study Hours: | 210 | Scheduled Learning and Teaching Hours: | | Face-to-face learning | 90 | Total Scheduled Learning and Teaching Hours: | 90 | Hours to be allocated | 300 | Allocated Hours | 300 |
| Independent Study Hours: | | | | | | | | | | | | | | | | | |
| Independent study/self-guided study | 210 | | | | | | | | | | | | | | | | |
| Total Independent Study Hours: | 210 | | | | | | | | | | | | | | | | |
| Scheduled Learning and Teaching Hours: | | | | | | | | | | | | | | | | | |
| Face-to-face learning | 90 | | | | | | | | | | | | | | | | |
| Total Scheduled Learning and Teaching Hours: | 90 | | | | | | | | | | | | | | | | |
| Hours to be allocated | 300 | | | | | | | | | | | | | | | | |
| Allocated Hours | 300 | | | | | | | | | | | | | | | | |
| Reading List | <p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/index.html</p> | | | | | | | | | | | | | | | | |

| Part 5: Contributes Towards | |
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| This module contributes towards the following programmes of study: | |