



Module Specification

Laboratory Skills and Data Analysis for Biosciences

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Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	4
Part 5: Contributes towards	5

Part 1: Information

Module title: Laboratory Skills and Data Analysis for Biosciences

Module code: USSKNH-30-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: This is a skills based module and aims to support and enhance the development of both subject-based and transferable key skills.

Outline syllabus: Specifically this module will introduce the following:

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.

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.

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.

Maths skills and data analysis: appreciation of variability in scientific data and experimental uncertainty, testing of hypothesis and making decisions, analysing and interpreting scientific data using IT software.

Part 3: Teaching and learning methods

Teaching and learning methods: See Learning Outcomes

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Perform basic scientific calculations relevant to the biological sciences

MO2 Undertake a range of standard laboratory procedures by using appropriate equipment in a safe manner

MO3 Present, analyse and interpret laboratory data using appropriate mathematical, statistical and communication skills

MO4 Critically evaluate laboratory data and suggest appropriate improvements

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 210 hours

Face-to-face learning = 90 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ussknh-30-1.html) via the following link <https://uwe.rl.talis.com/modules/ussknh-30-1.html>

Part 4: Assessment

Assessment strategy: 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.

Assessment 1 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.

Assessment 2 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.

Assessment tasks:

Portfolio (First Sit)

Description: Practical portfolio

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO3, MO4

Online Assignment (First Sit)

Description: Online data analysis assessment (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Portfolio (Resit)

Description: Practical portfolio

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO3, MO4

Online Assignment (Resit)

Description: Online data analysis assessment (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Biological Laboratory Sciences [UCW] FdSc 2023-24