



Module Specification

Research Skills

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Part 1: Information

Module title: Research Skills

Module code: USSKAP-30-2

Level: Level 5

For implementation from: 2021-22

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Delivery locations: Frenchay Campus

Field: Applied Sciences

Module type: Standard

Pre-requisites: Skills for Biosciences 2021-22

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisite: Students must have taken USSKA6-30-1: Skills for Biosciences

Features: Not applicable

Educational aims: This module will introduce students to the process of devising, carrying-out and disseminating their own research.

The skills students will practice within this module will be instrumental for their final year research project.

Outline syllabus: You will cover:

The research process and the importance of scientific integrity and rigour.

Design of appropriate experimental procedures to carry out work in a biological laboratory; the design of experiments will be discussed, including the choosing of methodologies, the use of controls, how to prepare materials and how to collect data.

Research governance, including health and safety, ethics, animal welfare and use of genetically modified organisms.

How to determine which statistical analysis is needed to interpret the data and carry out appropriate analysis correctly, including explanation of different distribution patterns and the types of data set that may be generated. A variety of statistical analysis methods will be covered, including tests for normality, homoscedascity, and parametric and non-parametric tests.

How to present data to maximum effect including the range of outputs of experiments to show how the proposed use of statistical analysis should be used to inform the structure of the experimental design.

Use a range of techniques over the timetabled practical sessions to obtain a robust data-set for analysis.

How to disseminate the outcome of studies in a variety of ways to a range of audiences. Dissemination in the form of reports (for example a research proposal), posters, oral communication and press releases will be discussed and you will be given the opportunity to plan and use such dissemination tools.

Identification and development of your graduate skills to assist in applications for placement and graduate employment, including teamwork, numeracy, resilience,

initiative and presentation skills.

Scientific enterprise and entrepreneurialism to raise your awareness of future possibilities for your career.

Part 3: Teaching and learning methods

Teaching and learning methods: Following on from the outline syllabus, will be discussions on how to choose the most appropriate type of statistical analysis for an experiment. A variety of statistical analysis methods will be covered, including t-test and two-way and multi-way ANOVA. Practical classes will enable students to set up experiments as discussed in previous session, collect appropriate data, analyses data appropriately and present the study to a wider audience.

How to disseminate the outcome of studies in a variety of ways to a range of audiences: dissemination in the form of reports (for example a research proposal), posters, press releases, will be discussed and student will be given the opportunity to plan such dissemination tools.

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

MO1 Design appropriate experimental procedures to carry out work in a biological laboratory and as field work

MO2 Discuss issues of research governance, including Health and Safety, Ethics, Animal Welfare and use of genetically modified organisms

MO3 Demonstrate knowledge and understanding of data handling and statistical assessment across a range of examples and correctly apply to their own dataset.

MO4 Gather and analyse laboratory and /or field procedures safety to gather a robust and useable set of data.

MO5 Disseminate the outcome of their study in a variety of ways to a range of audiences.

MO6 Evaluate and critically discuss previously published research

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 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/usskap-30-2.html) via the following link <https://uwe.rl.talis.com/modules/usskap-30-2.html>

Part 4: Assessment

Assessment strategy: The assessment for this module is designed to test the breadth and depth of students' knowledge, as well as their ability to analyse, synthesize and summarise information critically, including published research and data from the wider literature.

Component A consists of two elements. The first element is an online exam with a 24 hr window for submission. This assessment provides students with the opportunity to demonstrate their knowledge and understanding of data handling and statistical assessment. The second element is an oral defence of a scientific poster based on data gathered during the practical sessions on the module. This assessment allows students to demonstrate both their ability to research, prioritise information and produced a structured, evidence based answer.

This assessment links directly to requests from employers as they require graduates proficient at researching and scientific writing under pressure. Data is gathered and the poster is designed as a team, however the majority of the marks are from individual defence of the poster and submission of an abstract written independently.

The written assignments provide the opportunity for the student to complete an in-

depth analysis of selected topic from the module syllabus by critically reviewing published research as well as presenting their own data from the practical sessions.

Opportunities for formative assessment and feedback are built into the assignments and review of past exam papers.

Assessment components:

Examination (Online) - Component A (First Sit)

Description: Online Examination (24 hours)

Weighting: 18 %

Final assessment: No

Group work: No

Learning outcomes tested: MO3

Poster - Component A (First Sit)

Description: Poster, abstract and 10 minutes viva voce examination

Weighting: 42 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO2, MO4, MO5

Written Assignment - Component B (First Sit)

Description: Research proposal (1500 words) cv and skills reflection

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO5, MO6

Examination (Online) - Component A (Resit)

Description: Online Examination (24 hours)

Weighting: 18 %

Final assessment: No

Group work: No

Learning outcomes tested:

Poster - Component A (Resit)

Description: Poster, Abstract and 10 minute Viva voce examination. Poster from previous attempt may be used if component B was passed at that opportunity.

Weighting: 42 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

Written Assignment - Component B (Resit)

Description: Research proposal (1500 words) cv and skills reflection

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested:

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Biological Sciences [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Biological Sciences [Sep][FT][Frenchay][4yrs] MSci 2020-21

Biological Sciences [Sep][SW][Frenchay][5yrs] MSci 2020-21

Biological Sciences {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20

Biological Sciences {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2019-20