



Module Specification

Scientific Practice

Version: 2023-24, v2.0, 12 Jun 2023

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Part 1: Information

Module title: Scientific Practice

Module code: USSJT9-30-2

Level: Level 5

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Social Sciences

Partner institutions: None

Delivery locations: Not in use for Modules

Field: Applied Sciences

Module type: Module

Pre-requisites: Principles in Healthcare Science 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module provides the trainee with opportunities to cover and apply fundamental scientific research and development principles in the context of their programme functional categories. Additionally, they will undertake a basic research and development project, as well as take part in activities relating to audit and continuous improvement of service.

Features: Not applicable

Educational aims: See learning outcomes.

Outline syllabus: The scientific method and experimental design: Framing and testing hypotheses; planning and executing experiments; blocking and factorial experiments; collection, analysis and interpretation of data.

Sources of measurement error/variation: Biological variation; technical, systematic and random errors; measuring variation.

Relationships between variables: Simple, multiple, linear and non-linear regression analysis; correlation.

Comparing populations: Paired and unpaired t-tests; Mann Whitney U and Wilcoxon tests; one- and two-way analysis of variance.

Comparing frequencies: Chi-squared goodness-of-fit and contingency.

Audit process in Healthcare Science: Principles and practice.

Data retrieval, analysis and presentation: 'on-line' searches, including online journals/Google Scholar; use of relevant computer packages for the analysis of data and the production of 'publication quality' tables, figures, posters and reports.

Scientific communication: Methods, style and structure.

Part 3: Teaching and learning methods

Teaching and learning methods: Theoretical material within the module will be presented to the students in the form of problem-solving activities and webinars. A number of practical sessions will be incorporated during the campus-based blocks.

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

MO1 Understand the principles underpinning scientific research and evidence-based practice

MO2 Understand statistical techniques and their correct application

MO3 Participate in research and development projects to explore innovations in Healthcare Science

MO4 Describe and explain data types and their impact on data analysis

MO5 Conduct a review of scientific literature on an agreed topic

MO6 Understand and/or participate in audit activities in healthcare science

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/ussjt9-30-2.html) via the following link <https://uwe.rl.talis.com/modules/ussjt9-30-2.html>

Part 4: Assessment

Assessment strategy: Assessment 1 is a project that will be assessed through a report structured in the style of a scientific paper; the emphasis of the project will be on the interpretation of the data gathered rather than 'proving' the original hypothesis. The report will include a literature review of the relevant project area.

Assessment 2 is a set exercise, which will provide students with an opportunity to demonstrate their knowledge on a broad range of topics.

Formative feedback is available to students throughout the module through group discussions, and in workshops.

Assessment components:

Report (First Sit)

Description: Scientific report (2000 words).

Weighting: 50 %

Final assessment: No

Group work: No

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

Set Exercise (First Sit)

Description: Set Exercise

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO6

Report (Resit)

Description: Scientific report (2000 words).

Weighting: 50 %

Final assessment: No

Group work: No

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

Set Exercise (Resit)

Description: Set Exercise

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Healthcare Science (Radiation Physics) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Neurophysiology) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Respiratory & Sleep Physiology) {Apprenticeship-UWE}
[Frenchay] BSc (Hons) 2022-23

Healthcare Science (Cardiac Physiology) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Radiation Engineering) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Rehabilitation Engineering) {Apprenticeship-UWE} [Frenchay]
BSc (Hons) 2022-23

Healthcare Science (Medical Engineering) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Renal Technology) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Radiotherapy Physics) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23

Healthcare Science (Nuclear Medicine) {Apprenticeship-UWE} [Frenchay] BSc
(Hons) 2022-23