



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: 2024-25

UWE credit rating: 30

ECTS credit rating: 15

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Skills for Biosciences 2024-25

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Research Skills is a skills module which will build upon key concepts that all aspiring scientists need to have experience in for laboratory or field work, depending on their discipline. It is important to know how to formulate ideas, design experiments, carry out said experiments and interpret the meaning of the data obtained so it may be meaningfully disseminated to a wide audience. This module will guide you through numerous aspects of carrying out scientific data collection. It includes elements of research governance, statistical analysis and how to present

scientific findings – with an added employability stance. This module is a training which scaffolds to your individual research project in the final year of the degree in Biological Sciences, and into your furthered scientific career.

Features: Your lecture, tutorial and practical content are designed around the skills required of an eminent research scientist and are directly aligned with the module assessments.

Educational aims: This module aims to provide you with a more solid grounding in the processes of devising, carrying out and disseminating findings of your own research, building upon Level 4 and in preparation for Level 6. The module also aims to give you a greater appreciation for research methods and scientific integrity in wider contexts, as well as the confidence to critically evaluate peer-reviewed published research at a deeper level. As a skills module, employability is embedded in order to better prepare you for a scientific career, whether that be work experience, post-graduate study/research or scientific employment.

Outline syllabus: The module will cover the following content areas, designed around the themes of laboratory skills, data analysis, communication:

Experimental design: design of appropriate experimental procedures, for example choice of methodologies, use of controls, how to prepare materials, collect and interpret data.

Research governance: issues of scientific integrity and research governance, including health and safety, ethics, animal welfare and use of genetically modified organisms.

Practical skills: setting up experiments, key laboratory techniques, collecting and analysing data appropriately in practical sessions, including a 6-week mini-project.

Data handling and statistical analysis: how to choose and apply appropriate statistical analyses and how this informs experimental design, for example different distribution patterns, testing for normality, homoscedasticity, parametric and non-parametric testing.

Data presentation: how to present data to maximum effect, for example in a variety of figure formats, figure legends and how to describe results in written formats.

Science communication: how to communicate research in a variety of ways to a range of audiences, for example grant applications, reports, posters and press releases.

Employability skills: discussion of technical and transferrable skills required to succeed in a scientific field, guided by careers experts, for example skills audit/reflection, skills presentation, CV/covering letters and science enterprise.

Part 3: Teaching and learning methods

Teaching and learning methods: The module is taught as a combination of lectures, tutorials and practical classes.

Learning is applied in laboratory practical classes, forming the basis for the final poster assessment. This includes a 6-week laboratory mini-project, where you will undertake an authentic research project, complimented by clinics for statistics support in analysing collected data.

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

MO1 Communicate an appreciation for the skills and experimental processes required to gather a robust and usable dataset and succeed in scientific research.

MO2 Discuss issues of scientific integrity and research governance, including health and safety, ethics, animal welfare and use of genetically modified organisms.

MO3 Disseminate research outcomes in a variety of formats to a range of audiences or contexts including evaluation and critical discussion of previously published research.

MO4 Understand data handling and statistical analyses and correctly apply and present these for a collected dataset through the production of an abstract and research poster.

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: Assessment 1 is Portfolio.

Assessment 1 is a Grant Proposal Portfolio, consisting of a grant proposal, covering letter and skills reflection discussion (overall 1,500 words, skills discussion 5 minutes). This assessment is designed to allow you to reflect on key skills in the context of achieving research funding. The grant proposal informs a 6-week laboratory mini-project and is a scaffold to the poster presentation assessment within this module. This covers aspects of the importance of the project, project outcomes and scientific integrity (research governance), replicating the authentic process of research.

Assessment 2 is a Poster.

Assessment 2 is a Poster Pitch and Abstract. This assessment is designed to provide an authentic experience of the submission of an abstract for acceptance to a scientific conference (300 words), dissemination of research findings as a poster pitch (3-minute pitch, 7-minute Q&A). The poster and abstract will be based upon the 6-week laboratory mini-project, continuing the theme of Assessment 1.

You will also be guided through assessments with more informal assessment support sessions. For example, specific sessions for science communication, covering letter, skills reflection and academic posters, including input from our careers service.

You will be provided with feedback throughout the module, for example feedback provided for your grant proposal portfolio can feed forward into your poster assessment. As the module is designed to link between different levels of study, you will have the opportunity to use feedback from your Level 4 Skills for Biosciences (USSKA6-30-1) poster assessment to develop your poster for this module, and then to use feedback from this poster assessment in your Level 6 project assessment.

Assessment tasks:**Portfolio** (First Sit)

Description: Grant Proposal Portfolio (1500 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Poster (First Sit)

Description: Poster Pitch and Abstract

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO3, MO4

Portfolio (Resit)

Description: Grant Proposal Portfolio (1500 words)

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Poster (Resit)

Description: Poster Pitch and Abstract

Weighting: 60 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study: