Module specification

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Module Code	SCI457
Module Title	Principles & Applications of Science
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100391
Cost Code	GAFS

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
WUCCE Science for Higher Education, Aligned with BSc (Hons) Forensic Science for QA and assessment purposes	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	36 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**36 hrs**
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	**200 hrs**

For office use only	
Initial approval date	10th May 2023
With effect from date	September 2023
Date and details of revision	
Version number	1

Module aims

The aim of this module is to introduce the general concepts and basic principles of natural science, the philosophy behind scientific research and the history of its development. It will also enable students to gain an understanding of how science and technology influence and are influenced by contemporary society. This will pave the way for students to take on the future science related modules in a higher education degree programme of study.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Explain the fundamental concepts and principles that underpin general science and technology.
2	Use relevant scientific language and terminology in appropriate context.
3	Appreciate the philosophy and methodology in natural science.
4	Demonstrate essential scientific writing skills and formulate an overview of a scientific topic.

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment 1: Multiple-Choice Question Exam (2 hours)
To test the fundamental knowledge in natural science. There are 25 questions in total. Open book online test.

Assessment 2: Research essay (~1200 words).
Students are expected to choose one topic in natural science following the consultation with the tutor. The writing should demonstrate students' understanding of principles of science and its impact to the human society. The essay should be in the standard academic style.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1-2	Examination	50
2	3-4	Written Assignment	50

Derogations

None.

Learning and Teaching Strategies

The module will be delivered in line with the University's Active Learning Framework and will involve:

- Lectures
- Seminars
- Directed study *via* Moodle VLE
- Student directed study

The basic factual material will be delivered by means of face-to-face lectures. Lectures will be supported by seminars to involve students in the discussion on the how natural science has been developed in human's history and how it impacts every day's life. Students will be able to further develop their knowledge and understanding by reading additional course materials. Independent student-directed learning will enable them to delve more deeply into the subject material, enhancing their learning, while developing their academic transferrable and IT skills.

Indicative Syllabus Outline

- Basic concepts & principles in natural science
- A brief introduction to scientific history
- Philosophy and methodology in science
- Scientific laws & theories
- Measurement & observation
- Introduction to materials science

• Impact of science and technology to the human society
• Scientific writing skills workshop

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Chang, M. (2016) *Principles of Scientific Methods*. United States: CRC Press.

Other indicative reading

Boyle, J. and Ramsay, S. (2023) *Writing for Science Students, 2nd Ed.* United Kingdom: Bloomsbury Publishing.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas.

Core Attributes

Engaged
Creative
Ethical

Key Attitudes

Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets

Digital Fluency
Organisation
Critical Thinking
Emotional Intelligence
Communication