

Module specification

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Module Code	SCI456
Module Title	Practical Techniques in Science
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100392
Cost Code	GAFS

Programmes in which module to be offered

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

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	18 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	18 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	10 th 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 develop theoretical and practical knowledge of key laboratory methods in biology and chemistry, with particular emphasis on familiarisation with basic laboratory techniques and equipment; and safe working practices.

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

1	Prepare for and conduct laboratory tasks safely, including the completion of risk assessments and ethical considerations.
2	Correctly set up and use laboratory equipment and simple instrumental techniques pertaining to chemical and biological analysis.
3	Record, present and communicate scientific information in an appropriate and professional manner, following principles of good laboratory practice.
4	Apply the basic concepts in chemistry, biology and maths relevant to the experimental tasks.

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: Written assignment (1500 words)

Students will submit two laboratory reports (1500 words in total), including introduction, methodology, experimental results together with a reflective commentary etc. Students will need to demonstrate the relevance of the experiment to their programme of study.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1-4	Written Assignment	100%

Derogations

None

Learning and Teaching Strategies

Methods of delivery:

- Lectures
- Laboratory Sessions
- Directed study via Moodle VLE
- Student directed study

The module will be delivered using a variety of methods including online lectures, laboratory sessions, and group-based activities. Students will be able to further develop their knowledge and understanding by reading additional course materials and attempting the quizzes on the Moodle VLE. 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. Moodle will act as a repository for session materials.

Indicative Syllabus Outline

- Introduction to safe working practices in a laboratory

- Use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions.
- Preparation and standardization of solutions using titration.
- Separation techniques and TLC.
- Use appropriate apparatus to record a range of quantitative measurements such as temperature and pH.
- Microscopic analysis.
- Colorimetry.
- Interpreting experimental data
- Laboratory note keeping and writing laboratory reports.

Indicative Bibliography:

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

Essential Reads

Langford, A.M., Dean, J., Reed, R., Weyers, J. & Holmes, D.A. (2019), *Practical Skills in Forensic Science*, 3rd Edition, London: Pearson

Other indicative reading

Dean, J.R., Jones, A., Holmes, D., Reed, R., Weyer, J., Jones, A. (2017), *Practical Skills in Chemistry*, 3rd Edition, Harlow: Pearson.

Jones, A., Reed, R., Weyer, J. (2021), *Practical Skills in Biology*. 7th Edition, Harlow: Pearson.

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
 Enterprising
 Creative

Key Attitudes

Commitment
 Curiosity
 Resilience
 Confidence

Practical Skillsets

Digital Fluency
 Organisation
 Leadership and Team working
 Emotional Intelligence
 Communication