

Module specification

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Module Code	SCI458
Module Title	Essential Laboratory Skills
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
BSc (Hons) Forensic Science	Core
BSc (Hons) Forensic Science with Placement Year	Core
BSc (Hons) Biochemistry	Core
BSc (Hons) Biomedical Science	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	10/05/2023
With effect from date	Sept 2023
Date and details of revision	
Version number	1

Module aims

The aim of this module is to develop essential skills in laboratory procedures and techniques with due regards to regards to personal safety and safety of team members, PPE requirements, understanding the importance of risk and COSHH assessments Students will be introduced to key methods in qualitative and quantitative analysis and taught contamination avoidance procedures Links between theory and experiments will be established to achieve a deeper understanding of the experimental method and results. Laboratory reports based on each experiment conducted will help develop and improve report writing skills.

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

1	Follow instructions and perform laboratory tasks in an efficient and safe fashion.
2	Correctly set up and use simple instrumental techniques and laboratory equipment.
3	Identify and quantify chemical compounds through qualitative and quantitative analysis
4	Report on scientific laboratory investigations, with due regard for the subject conventions.

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: Coursework

The coursework comprises pre-lab assignments and student's Laboratory Notebook Records. The assessment of pre-laboratory assignments ensures that students have demonstrated an ability to locate and interpret safety information and have planned their work so that they act appropriately in the laboratory.

Assessment 2: Written Assignment (~1500 words)

Students will also submit two laboratory reports totally ~1500 words.

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

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

- Health, safety and ethics in a laboratory and COSHH regulations.
- Introduction to simple instrumental techniques and laboratory equipment their use.
- Laboratory note keeping and writing laboratory reports.
- Data collection, management and presentation (including graphs) and analysis.
- Qualitative analysis- identification of unknown white powders
- Quantitative analysis- determination of metal ions in water
- Determination of citric acid in food products.
- Determination of ascorbic acid (Vitamin C) in urine samples.
- Presumptive tests for amino acids and proteins.
- Analysis of organic phosphate bonds.
- Extraction of DNA.

Indicative Bibliography:

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

Essential Reads

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.

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

Lobban, C.S. & Schefter, M. (2017), *Writing Undergraduate Lab Reports: A Guide for Students*, Cambridge: Cambridge University Press.

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

Organisation

Leadership and Team working

Emotional Intelligence

Communication