

Module Details	
Module Title	Laboratory and Professional Skills 2
Module Code	BIS5019-B
Academic Year	2024/5
Credits	20
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 5

Contact Hours	
Type	Hours
Laboratories	22
Directed Study	146
Lectures	12
Tutorials	8
Practical Classes or Workshops	12

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims
<p>Scientists are responsible for not only routine testing required for healthcare decisions, but they are also fundamental for furthering our understanding of disease and pioneering new treatments. To be able to work effectively, scientists must possess not only key laboratory skills but also essential inquiry and critical evaluation skills.</p> <p>This module supports the programme by developing learners' practical, literacy, numerical and data handling skills. The module also furthers understanding of professional standards in Biomedical Science by facilitating the acquisition of core personal transferable skills (PLO8-10).</p> <p>This module will enhance student employability through a focus on personal and career development. Students will be supported to identify and further develop personal transferable skills, particularly in the application of numerical and practical laboratory-based skills, and to develop confidence and independence in the laboratory.</p>

## Outline Syllabus

### Academic content:

- \* Laboratory skills
- \* Writing skills
- \* Mathematical skills for laboratory scientists
- \* Plagiarism
- \* Planning a project and time management
- \* Generation of reliable data
- \* Data handling, analysis and interpretation workshops
- \* Experimental design
- \* Importance of ethics in medical research
- \* Clinical trials
- \* The role of the Health and Care Professions Council (HCPC)
- \* Laboratory standards, quality control and audits

### Employability and enterprise skills:

- \* Biomedical technique knowledge and understanding
- \* Advanced oral communication skills
- \* Data handling
- \* Data analysis and interpretation
- \* Planning and time management
- \* Critical thinking
- \* Team work

## Learning Outcomes

Outcome Number	Description
01	Demonstrate practical ability, understanding and application of advanced laboratory techniques.
02	Evaluate the robustness and validity of scientific data using statistical analyses.
03	Demonstrate understanding of the issues which are important in generating reliable data.
04	Accurately, clearly and appropriately communicate information and ideas in a written, verbal or visual format in such a way as to articulate their understanding to academic, specialist and non-specialist audiences.
05	Select relevant literature, critically analyse data and identify the significance of information to produce a line of argument supported by relevant evidence.
06	Reflect on and analyse their own strengths, limitations and performance in the application of laboratory techniques.

## Learning, Teaching and Assessment Strategy

The LTA strategy encompasses education for employability and equal opportunities for learners.

This module will build on the professional skills foundations that were developed in Laboratory and Professional Skills 1.

Taught sessions are characterised by active learning concepts and will cover key topics including experimental design, presentation of data, the use of statistics, advanced oral communication skills and ethics. The importance of clinical trials, science communication, the role of the Health and Care Professions Council (HCPC), laboratory standards, quality control/audits, health and safety, ethics and demonstration of competency to practice as a biomedical scientist.

Semester 1 will begin with an advanced laboratory skills boot-camp. Laboratories to build advanced experimental competencies and to conduct a mini project will take place in semester 2. Learners will apply prior learning to design their own mini research project which will take place over 4 non-consecutive days.

Tutorials form part of more structured small group work that runs throughout both semesters. In these sessions feedback on draft assessments, and pastoral care is provided. Key employability and enterprise skills are reinforced in these tutorials.

Workshops will cover essay writing and plagiarism, calculations and statistics and academic debating.

Knowledge and skills will be assessed in a variety of ways throughout the module.

The skills eportfolio is continually assessed and includes a log of demonstrated practical skills, laboratory reports, reflection on performance, health and safety training, equality and diversity and unconscious bias training. The skills eportfolio is a MUST PASS element in year 2, as stipulated by the accrediting body (IBMS) and students MUST PASS the eportfolio in order to pass the module. Learners will have multiple opportunities to gain the practical skills across Stages 1 and 2.

The statistical and data interpretation test will facilitate the consolidation of numeracy and statistical skills relevant to the field.

The viva will enhance learners' advanced communication skills as well as providing opportunity to articulate their understanding and demonstrate reasoning skills.

The project proposal will prepare learners with the relevant skills for the stage 3 project module.

Formative e-portfolio guidance will be provided during all laboratory and personal tutorial sessions.

A formative statistical and data interpretation computer-based test will take place prior to the summative assessment.

Formative sessions on the project proposal and viva will be provided during personal tutorials and/or a group session.

Reassessment of failed elements will be as per the initial method of assessment, except for the viva (which will be on a scientific paper rather than the mini-project).

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Coursework - Portfolio/e-portfolio	Skills e-portfolio including health and safety MUST PASS AT 40%	40%
Summative	Computerised examination	Statistical testing and data interpretation	20%
Summative	Coursework - Written	Project proposal (1000 words)	15%
Summative	Examination - oral/viva voce	Viva	25%
Formative	Computerised examination	Statistical testing and data interpretation	N/A

Reading List
To access the reading list for this module, please visit <a href="https://bradford.rl.talis.com/index.html">https://bradford.rl.talis.com/index.html</a>

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*

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