

Module Details	
Module Title	Biomedical Science Research Project
Module Code	BIS6026-D
Academic Year	2024/5
Credits	40
School	School of Chemistry and Biosciences
FHEQ Level	FHEQ Level 6

Contact Hours	
Type	Hours
Directed Study	194
Lectures	20
Practical Classes or Workshops	18
Tutorials	4
Laboratories	160

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

Module Aims

The Biomedical Science Research Project is an individual programme of supervised research in which the learner, in consultation with their supervisor, designs and carries out experiments, analyses data, presents findings and critically evaluates results and published literature. These skills enable the learner to become autonomous while working on a unique, cutting-edge research project in a biomedical science field.

This module supports the programme through acquisition of coherent and detailed knowledge in a research-led project (PLO11). It also enables learners to demonstrate their ability to manage autonomous learning and make use of scholarly reviews and primary sources to devise and sustain arguments (PLO12-13).

This capstone project module will build on prior learning to develop research design skills, through the planning and execution of hypothesis-based research and scientific writing.

This module will support those students seeking knowledge to assist their employment in any laboratory-based employment (e.g. NHS, public health laboratories, research and development laboratories, pharmaceutical companies, biotechnology companies, food and water industry, veterinary laboratories, forensic science). The skills will also facilitate learner transition to other higher education programmes.

Learners are encouraged to self-reflect on enterprise, entrepreneurship and employability skills throughout the module, giving them specific examples to be used in job applications and/ or interviews.

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Outline Syllabus

Academic Content

Data generation, recording, collation and statistical techniques for the analysis of quantitative data and/or qualitative analytical for the interpretation of non-numerical data.

Methods used in Biomedical research, including: PCR, qPCR, SDS-PAGE, Western blotting, tissue culture; immunohistochemistry; bioimaging and bioinformatics

COSHH and biological safety assessments; Good laboratory practice

Ethics in research; The Human Tissue Act

Use of referencing software, scientific writing, literature searching. Critical evaluation, problem-solving, use of primary or secondary data to reach a coherent conclusion, and presentation of results.

In conjunction with the careers service, employability, CV writing, job applications and interview technique sessions will also be provided.

Employability and Enterprise Skills

Biomedical knowledge and critical understanding

Laboratory skills

Communication skills

Data analysis and interpretation

Data handling

Critical thinking

Team work

Advanced oral and written communication skills

Planning and time management

Advanced literature searching and reference management

Learning Outcomes

Outcome Number	Description
01	Critically describe, explain and make appropriate judgements around a current research topic in Biomedical Sciences whilst evaluating approaches used to investigate this topic (HCPC standards 1, 13).
02	Plan and execute a programme of original research (HCPC standards 4,14).
03	Construct and maintain research records appropriately (HCPC standard 10)..
04	Conduct appropriate research competently and demonstrate skills appropriate to the project undertaken (HCPC standard 14).
05	Select and apply appropriate statistical techniques for a range of scientific analyses.
06	Compile a piece of unique scientific writing that presents and interprets data in a clear and effective way using correct language and terminology (HCPC standards 8).
07	Demonstrate knowledge and understanding of issues, which are important in generating reliable data.

Learning, Teaching and Assessment Strategy

Teaching and Learning Methods: The LTA strategy encompasses education for employability and equal opportunities for learners.

A number of different types of capstone projects will be offered and may include: Laboratory based; Big Data and Bioinformatics; Computer modelling; Educational development and Team capstone projects.

This module uses a blended approach to support learning and achievement. Students will engage with a series of online learning packages as well as onsite active-learning lectures. These will include short videos that address key concepts. Virtual lab simulation tutorials will be used to ensure understanding. Students will also have onsite workshops for statistics, literature search and referencing, COSHH, Risk Assessment, Biological Safety and Ethics.

During semester 1 students will conduct literature searches, carry out background reading and generate their hypothesis/ research question and design their protocols. This will be facilitated by regular supervisor meetings.

At the end of semester 1, students will receive technical research methodology training. This will further develop laboratory skills and prepare them for a 4-week intensive data collection and analysis period at the start of semester 2.

During directed study hours, students are expected to undertake reading to consolidate and expand on the content of formal taught sessions; research and prepare for assessments and undertake specific elements of reading as directed. This directed study will be facilitated by the project supervisor.

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

The Project Plan is assessed by the project supervisor and second considered. Formative assessment for this component is delivered by individual feedback in one-to-one meetings with project supervisors.

The supervisor's assessment of student's performance in the laboratory is assessed by the project supervisor. To ensure equity, learners will submit evidence of their lab work and meeting records. Formative assessment for this component is continuous during the 4-week intensive data collection period.

The Project Report component is assessed by the project supervisor and blind second marked. Formative assessment for this component is submitted via the VLE and individual feedback is given on each major section of the written report.

The poster presentation is assessed by two academics during a presentation day. Learners are required to deliver a short presentation followed by a question-and-answer session. Formative group feedback sessions will be available.

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Coursework - Written	1000 words (equivalent) Project background and plan (LOs1-2).	10%
Summative	Coursework - Portfolio/e-portfolio	Supervisor's assessment of student's performance in laboratory. Lab books and meeting records as evidence. (LO2-4).	10%
Summative	Dissertation or Project Report	5000 words Project report (LOs1-2, 5-7).	65%
Summative	Presentation	Conference-style poster presentation on the project (LOs6-7).	15%

Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

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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