

Biochemistry and Molecular Biology

Course Descriptor

Course Title	Biochemistry and Molecular Biology	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP487	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	4	Date approved	Sep 2021
Compulsory/Optional	Compulsory	Date modified	
Pre-requisites	None		
Co-requisites	None		

Course Summary

This course introduces the core principles, theory, concepts and terminology of biochemistry and molecular biology. Focussing on biochemical structures and processes within cells it looks in detail at chemical relationships between biomolecules including, carbohydrates, proteins, nucleic acids and lipids for cell division, structure, operation and energy. It explores the principles of molecular biology and introduces some of the significant milestones in the evolution of the discipline, particularly in the field of DNA sequencing and transcription and the impact they have on our understanding of cell division and pathological conditions.

Course Aims

- To introduce the core principles of biochemistry and molecular biology.

- To examine the biochemical structures and processes within eukaryotic cells, such as the relationship between biomolecules including carbohydrates, proteins, lipids and nucleic acids.
- To investigate and consider the molecular structure of cells and consider the evolution of knowledge within the discipline.

Learning Outcomes

On successful completion of the course, learners will be able to:

Knowledge and Understanding

- K1a Understand the biochemical processes within cells and the function of biomolecules including proteins, carbohydrates, lipids and nucleic acids.
- K2a Understand the principles of purification, separation, characterisation and further experimental techniques used in biochemistry and molecular biology.
- K4a Understand the wider context of molecular biology, such as the impact that molecular science has had on the knowledge and understanding of DNA, cell division and the evolution of life.

Subject Specific Skills

- S1a Articulate the core principles of biochemistry, the scope of the discipline and key methodologies.
- S2a Evaluate and appropriately use biochemistry and molecular biology experimentation approaches in a hypothetical scenario.
- S3a Analyse and interpret data from biochemistry and/or molecular biology experiments, linking findings to theory.

Transferable and Professional Skills

- T1a Take personal responsibility in professional development.
- T2a Apply problem-solving skills to develop solutions to problems.
- T3ai Communicate ideas effectively by written means.
- T3aii Display a developing technical proficiency in written English and an ability to communicate clearly and accurately in structured and coherent pieces of writing.

Teaching and Learning

This is an e-learning course, taught throughout the year.

This course can be offered as a standalone short course.

Teaching and learning strategies for this course will include:

- Online learning
- Online discussion groups
- Online assessment

Course information and supplementary materials will be available on the University's Virtual Learning Environment (VLE).

Learners are required to attend and participate in all the formal and timetabled sessions for this course. Learners are also expected to manage their self-directed learning and independent study in support of the course.

The course learning and teaching hours will be structured as follows:

- Off-the-job learning and teaching (6 days x 7 hours) = 42 hours
- One-the-job learning (12 days x 7 hours) = 84 hours (e.g. 2 days per week for 6 weeks)
- Private study (4 hours per week) = 24 hours

Total = 150 hours

Workplace assignments (see below) will be completed as part of on-the-job learning.

Assessment

Formative

Learners will be formatively assessed during the course by means of set assignments. These will not count towards the final degree but will provide learners with developmental feedback.

Summative

Assessment will be in two forms:

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Multiple Choice Exam	40%	Yes	1 hour	-
2	Portfolio (Laboratory Practice)	60%	Yes	Requiring on average 20 – 30 hours to complete	-

Feedback

Learners will receive formal feedback in a variety of ways: written (via email or VLE correspondence) and indirectly through online discussion groups. Learners will also attend a formal meeting with their Academic Mentor (and for apprentices, including their Line Manager). These bi or tri-partite reviews will monitor and evaluate the learner's progress.

Feedback is provided on summatively assessed assignments and through generic internal examiners' reports, both of which are posted on the VLE.

Indicative Reading

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

Books

- Berg, J. M., Tymoczko, J. L., and Stryer, L. (2002). *Biochemistry* (5th ed.). New York : W.H. Freeman
- Clark, D. P. (2005). *Molecular biology*. Amsterdam ; Boston : Elsevier Academic Press.
- Alberts, B. (2015). *Molecular biology of the cell* (6th ed.). New York : Garland Pub.

Journals

Learners are encouraged to read material from relevant journals on biochemistry and molecular biology as directed by their course leader.

Electronic Resources

Learners are encouraged to consult relevant websites on biochemistry and molecular biology.

Indicative Topics

- Biochemistry
- Experimental methods
- Molecular biology

Version History

Title: NCHNAP487 Biochemistry and Molecular Biology Course Descriptor					
Approved by: Academic Board					
Location: Academic Handbook/Programme specifications and Handbooks/ Undergraduate Apprenticeship Programmes/BSc (Hons) Bioscience with Digital Technologies Programme Specification/Course Descriptors					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
3.0	October 2022	January 2023	Scott Wildman	September 2026	Category 1: Corrections/clarifications to documents which do not change approved content. Category 3: Changes to Learning Outcomes
2.1	May 2022	May 2022	Scott Wildman	September 2026	Category 1: Corrections/clarifications to documents which do not change approved content.
2.0	January 2022	April 2022	Scott Wildman	September 2026	Category 3: Changes to Learning Outcomes
1.0	September 2021	September 2021	Scott Wildman	September 2026	