Northeastern University London

Applied Cell Biology Course Descriptor

Course Title	Applied Cell Biology	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP486	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

The course introduces the structure and function of eukaryotic and prokaryotic cells, including the nucleus, organelles, cell organisation, cell cycle control and the cytoskeleton. The metabolism and energy production of cells and cell division in microorganisms, plants and animals is examined. A key focus of the course is for learners to understand the experimental techniques used to probe and understand the biology of the cell. The evolution of applied cell biology is also explored, and a range of contexts such as, industrial, health and biological research are examined to identify the impact of cell biology on our lives and the ecosystem we inhabit.

Course Aims

- For learners to understand the fundamental structure and function of eukaryotic and prokaryotic cells.
- For learners to explore the structure and function of cells in order to understand the complexity of the fundamental building blocks of life.
- For learners to understand the experimental techniques used in cell biology.

Learning Outcomes

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

Knowledge and Understanding

K1a Understand the underlying principles of cell biology, including the differences between eukaryotic and prokaryotic cells.

K2a Understand the key experimental methods used in cell biology, including their context and limitations.

K3a Understand the process of cell metabolism and division, and the function of membranes and organelles.

Subject Specific Skills

S1a Identify the key characteristics of eukaryotic and prokaryotic cells, including the compartmentation within a eukaryotic cell and the importance of intracellular structures for metabolism and division.

S2a Conceptually understand how to implement experimental techniques commonly used in cell biology and their context within the workplace.

S4a Describe the application of cell biology in the workplace and/or in the wider life science sector, such as in industrial, environmental or biological processes.

Transferable and professional skills

T1a Take responsibility for independent study and time management.

T2a Research information from a range of sources.

T3a 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	Portfolio (workplace exercises)	50%	Yes	Requiring on average 20 – 25 hours to complete	-
2	Set Exercises (problem-solving)	50%	Yes	Requiring on average 20 – 25 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

- Pollard, T. D., Earnshaw, W. C., Lippincott-Schwartz, J., & Johnson, G. T. (2017). *Cell biology* (3rd ed.). Philadelphia, PA : Elsevier
- Alberts, B. (2014). *Essential cell biology* (4th ed.). New York : Garland Science Pub.
- 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 applied cell biology as directed by their course leader.

Electronic resources

Learners are encouraged to consult relevant websites on applied cell biology.

Indicative Topics

- Cell structure and function
- Experimental methods
- Applied cell biology

Version History

Title: NCHNAP486 Applied Cell 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 or learning outcomes Category 3: Changes to Course Learning Outcomes
2.0	January 2022	April 2022	Scott Wildman	September 2026	Category 3: Changes to Course Learning Outcomes
1.0	September 2021	September 2021	Scott Wildman	September 2026	