Frontier Topics in Bioscience Course Descriptor

Course Title	Frontier Topics in Bioscience	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP6135	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	6	Date approved	September 2021
Compulsory/ Optional	Compulsory	Date modified	
Pre-requisites	None		
Co-requisites	None		

Course Summary

This course examines modern advances in bioscience and health, such as omics, biomarkers, biologics, big data, personalised medicine and public health strategies. Learners will perform critical analysis, evaluate and discuss the pros and cons of each topic using a range of scholarly articles. The social and ethical contexts are considered alongside the scientific advances. Learners will use reflective practice to evaluate their own position on ethical dilemmas and the advancement of science.

Course Aims

- To explore and evaluate the latest advances in bioscience and health.
- To perform critical and analysis using scholarly articles and research methodology.
- To examine the ethical considerations of scientific advancements.

Learning Outcomes

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

Knowledge and Understanding

K1c   Systematically understand and have detailed knowledge of modern advances in bioscience and health.

K2c   Conceptually understand laboratory practice that's at the forefront of the discipline.

K3c   Critically understanding how to use data mining and research methodologies to explore and evaluate new scientific advances.

Subject Specific Skills

S2c   Critically evaluate scientific advances using creative thinking, data mining and scholarly reviews.

S3c   Work autonomously to analyse, interpret and robustly evaluate scientific data and communicate ideas.

Transferable and Professional Skills

T2c   Apply analytical, critical thinking and problem solving to evaluate scholarly literature.

T3c   Communicate critical arguments and big-picture thinking to non-specialist audiences.

T3c   Display an advanced level of technical proficiency in written English and competence in applying scholarly terminology, so as to be able to apply skills in critical evaluation, analysis and judgement effectively in a diverse range of contexts.

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 (work-based exercises)	50%	Yes	Requiring on average 20 – 25 hours to complete	-
2	Written Assignment (case study based)	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

- Turnpenny, P. D., Ellard, S., & Cleaver, R. (2021). *Emery's Elements of Medical Genetics and Genomics* (Sixteenth edition.). Philadelphia, PA : Elsevier 2021

- McNamara, J., & Leimar, O. (2020). *Game theory in biology : concepts and frontiers* (First edition.). Oxford, United Kingdom : Oxford University Press 2020

- O'Donnell, J. J. (2020). *Drug Discovery and Development.* Boca Raton, FL : CRC Press, Taylor & Francis Group 2020

Journals

Learners are encouraged to read material from relevant journals on frontier topics in bioscience as directed by their course leader, such as:

- Allen, P. G. (2016). New frontiers in bioscience. Science (American Association for the Advancement of Science), 352(6281), 11–11. https://doi.org/10.1126/science.aaf7711

Electronic Resources

Learners are encouraged to consult relevant websites on frontier topics in bioscience.

Indicative Topics

- Advances in genetics
- Advanced statistical tools and methodologies
- Advances in drug discovery and therapeutics

Version History

Title: NCHNAP6135 Frontier Topics in Bioscience 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 Learning Outcomes
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	