UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title:	Science in Society
Module Code:	ARC3000-B
Academic Year:	2019-20
Credit Rating:	20
School:	School of Archaeological and Forensic Sciences
Subject Area:	Life Sciences (Faculty-wide)
FHEQ Level:	FHEQ Level 3
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	**Hours**
Lectures	24
Seminar	2
Practical classes and workshops	14
Tutorials	6
Directed Study	154

Availability	
Occurrence	**Location / Period**
BDA	University of Bradford / Semester 1 (Sep - Jan)

Module Aims

To develop the student's knowledge and understanding of the core principles of biology and chemistry, and the underlying mathematical and practical skillsets, required for a successful transition to degree-level study in disciplines which require an academic background in science.

Outline Syllabus

Biology:
Introduction to cell biology, molecular biology, microbiology, biochemistry and genetics.

Cell structure, cell communication, diffusion and osmosis, control and co-ordination.

Chemistry:
Elements, compounds, molecules and mixtures, density, separation techniques; atoms and their structure, the periodic table; bonding: intermolecular, intramolecular, ionic, covalent, metallic; pH, acids and bases, chemical equations. Stiochiometry, Mole Concept, relative atomic/molar masses, molar volume, reacting masses, molar conc. Introduction to organic functional groups and principles of nomenclature.

Maths:
Measures; significant figures; units & prefixes; ratios; diagrams and line graphs; plotting equations; averages; percentages; algebra; rearranging equations; logarithms; indices; standard form; statistics (Chi-square, Spearmans rank & T-test); understanding significance.

Practical Techniques:
Health and safety, serial dilutions, pipetting, spectrometry, titrations, preparation of molar solutions, microscopy, pH measurement, use and selection of laboratory glassware, percentage yields.

Learning Outcomes

1	Describe, explain and interpret phenomena based on underlying chemical principles.
2	Describe, explain and interpret introductory concepts in cell biology, molecular biology, biochemistry, microbiology and genetics.
3	Apply biological, chemical and mathematical concepts to solve problems in familiar and unfamiliar situations.
4	Apply scientific knowledge to safely conduct practical tasks.
5	Analyse and interpret experimental data and make reasoned judgements based on this analysis.

Learning, Teaching and Assessment Strategy

Students will develop understanding and application of knowledge through engagement with lectures, tutorials and the theoretical aspects of practical classes. This tuition will facilitate the achievement of learning outcomes 1, 2 and 3.

Learning outcomes 4 and 5 will be facilitated through the application of theory to practice, which will be undertaken in both a laboratory setting, and practical classes and workshops. Students will be encouraged to reflect on practical activities and identify areas of improvement through engaging with the reflective journal assessment.

Formative feedback on examination style questions will be provided through seminar sessions. Continuous feedback will be given on the reflective journal.

The module VLE site will support students to further enhance understanding and the application of the knowledge. The site will host a range of online resources, class resources, directed reading lists with guided reading activities and external links.

The closed book exam will assess learning outcomes 1, 2, 3 and 5. The reflective journal will assess learning outcomes 1, 2, 3, 4 and 5.

Mode of Assessment				
Type	**Method**	**Description**	**Length**	**Weighting**
Summative	Examination - closed book	Short answer questions	1.5 hours	70%
Formative	Coursework	Reflective journal		%
Formative	Coursework	Seminar questions: short answer questions		%
Summative	Coursework	Reflective journal	Approx 1000 words	30%

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.