

MODULE DESCRIPTOR

Module Title

Biomolecular Science

Reference	AS1026	Version	8
Created	August 2021	SCQF Level	SCQF 7
Approved		SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To provide students with an understanding of the basic principles of biochemistry, and the structure and chemical properties of the main biomolecules.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Demonstrate knowledge of the structures and functions of the main biomolecules.
- 2 Demonstrate knowledge of the mechanism of action of enzymes and factors which affect their activity.
- 3 Demonstrate understanding of the role of enzymes in metabolic pathways and how these can be controlled.
- 4 Demonstrate the ability to handle data and maintain an accurate record of laboratory work.

Indicative Module Content

Biomolecules: lipids, carbohydrates, proteins, nucleic acids and their structures, properties and functions within living organisms. Stereochemistry. The role of enzymes in catalysis, the active site, enzyme specificity, factors affecting enzymic activity. Measurement of enzymic activity. Enzymes within cells, compartmentalisation. Control of enzymic activity, allosteric enzymes, zymogens and covalent modification. Consequences of enzymic deficiency. Bioenergetics. Catabolism and anabolism.

Module Delivery

This is a lecture based module supplemented by tutorials, practical laboratory classes, on-line support material and guided reading.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	40	N/A
Non-Contact Hours	110	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Examination	Weighting:	70%	Outcomes Assessed:	1, 2, 3
Description:	Closed book written examination.				

Component 2

Type:	Coursework	Weighting:	30%	Outcomes Assessed:	4
Description:	Laboratory based coursework.				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The first grade represents Component 1 (EX1) weighted as major and the second, Component 2 (CW1), weighted as minor. A minimum module grade of D is required for a pass, with compensation of grade E in Component 1 or Component 2 permitted. Non-submission of either component will result in an NS grade.

Module Grade	Minimum Requirements to achieve Module Grade:
A	AA, AB
B	AC, AD, AE, BA, BB, BC, CA
C	BD, BE, CB, CC, CD, DA, DB
D	CE, DC, DD, DE, EA, EB, EC
E	AF, BF, CF, DF, ED, EE, EF, FA, FB, FC, FD
F	FE, FF
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None, in addition to course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 BERG, J.M., et al. *Biochemistry*. Current Edition. Freeman.
- 2 BETTELHEIM, F.A., et al. *Introduction to general, organic and biochemistry*. Current Edition. Brooks/Cole, Cengage Learning.
- 3 ENGEL, P. *Pain-free biochemistry: an essential guide for the health sciences*. Current Edition. Wiley-Blackwell.
- 4 RAYMOND, K.W. *General, organic and biological chemistry: an integrated approach*. Current Edition. Oxford: Wiley.