

<b>Module Title</b> <b>Biomolecular Science</b>  <b>Keywords</b> Lipids, carbohydrates, proteins, amino acids, enzymology, bioenergetics, metabolism.	Reference AS1026 SCQF Level SCQF 7 SCQF Points 15 ECTS Points 7.5 Created January 2004 Approved September 2004 Amended May 2011 Version No. 5
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## This Version is No Longer Current

The latest version of this module is available [here](#)

### Prerequisites for Module

None, in addition to course entry requirements.

### Corequisite Modules

None.

### Precluded Modules

None.

### 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:

### Indicative Student Workload

<i>Contact Hours</i>	Full Time
Assessment	2
Lectures	24
Practicals	9
Tutorials	5

#### *Directed Study*

Preparation of coursework	30
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#### *Private Study*

Private Study	80
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### Mode of Delivery

Theoretical material is delivered by lectures and web based materials with supporting tutorials and practical laboratory classes.

### Assessment Plan

Learning Outcomes Assessed
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1. Describe the structures and functions of the main biomolecules.
2. Explain the mechanism of action of enzymes and factors which affect their activity.
3. Explain 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.

Component 1	1,2,3
Component 2	4

Component 2 is a laboratory record.

Component 1 is an examination.

### 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.