**Liverpool** John Moores University

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| Title: | BIOCHEMISTRY |
| Status: | Definitive |
| Code: | **4000BCBMOL** (101424) |
| Version Start Date: | 01-08-2011 |
| Owning School/Faculty: | Pharmacy & Biomolecular Sciences |
| Teaching School/Faculty: | Pharmacy & Biomolecular Sciences |

| Team | Leader |
|---|---|
| Kehinde Ross | Y |
| Andrew Powell | |
| Helen Burrell | |
| Mark Murphy | |
| Khalid Rahman | |
| Amanda Reid | |
| David Billington | |

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| **Academic Level:** | FHEQ4 | **Credit Value:** | 12.00 | **Total Delivered Hours:** | 37.00 |
| **Total Learning Hours:** | 120 | **Private Study:** | 83 | | |

**Delivery Options**
Course typically offered: Semester 1

| Component | Contact Hours |
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| Lecture | 20.000 |
| Online | 1.000 |
| Practical | 12.000 |
| Workshop | 3.000 |

**Grading Basis:** 40 %

**Assessment Details**

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|---|---|---|---|---|
| Exam | AS1 | examination | 60.0 | 1.00 |

**Aims**

*To provide a basic introduction to, and an overview of, biochemistry.*

## Learning Outcomes

After completing the module the student should be able to:

1 Describe the structure of DNA and RNA and the mechanism of expression of genetic information.
2 Describe eukaryotic and prokaryotic genomes and the control of gene expression.
3 Describe the different levels of protein structure and basic enzyme function/kinetics.
4 Describe the structure and functions of membranes.
5 Carry out a number of basic biochemical methodologies.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

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|---|---|---|---|---|---|
| EXAM | 1 | 2 | 3 | 4 | 5 |

## Outline Syllabus

*Cell structure.*
*Protein structure and function: Amino acids. Primary, secondary, tertiary and quaternary protein structure. Enzymes: kinetics, inhibition, allosteric effects. Constitutive, inducible and repressible enzymes.*
*Nucleic acid Biochemistry: Structure of DNA and RNA, the genome. Replication, transcription and translation in prokaryotes. The genetic code.*
*Membranes: Chemical structure and function, the Singer-Nicolson model. Membrane transport and receptors.*

## Learning Activities

Lectures, practicals and workshops.

## References

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|---|---|
| **Course Material** | Book |
| **Author** | Mathews, C.K., Van Holde, K.E. and Ahern, K.G. |
| **Publishing Year** | 2000 |
| **Title** | Biochemistry |
| **Subtitle** | |
| **Edition** | 3rd Ed. |
| **Publisher** | Addison Wesley Longman |
| **ISBN** | 0-8053-3066-6 |

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| **Course Material** | Book |

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| **Author** | Berg, J.M. Tymoczko, J.L. and Stryer, L. |
| **Publishing Year** | 2006 |
| **Title** | Biochemistry |
| **Subtitle** | |
| **Edition** | 6th Ed |
| **Publisher** | Freeman |
| **ISBN** | 0-7167-8724-5 |

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|---|---|
| **Course Material** | Book |
| **Author** | Brown, T.A. |
| **Publishing Year** | 2002 |
| **Title** | Genomes 2. |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | Bios |
| **ISBN** | 185996029-4 |

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|---|---|
| **Course Material** | Book |
| **Author** | Alberts et al |
| **Publishing Year** | 2008 |
| **Title** | Molecular Biologt of the Cell |
| **Subtitle** | |
| **Edition** | 5th |
| **Publisher** | Garland |
| **ISBN** | 9780815341062 |

**Notes**

The module provides an overview of biochemistry. It provides a basis for further study, and is also suitable for students who are unlikely to study the subject further. Mathematical procedures and chemical formulae are used but are kept to the necessary minimum.

Biochemistry, study of the chemical substances and processes that occur in plants, animals, and microorganisms and of the changes they undergo during development and life. It deals with the chemistry of life, and as such it draws on the techniques of analytical, organic, and physical chemistry.Â  Professor of Biochemistry, School of Medicine and Dentistry, University of Rochester, New York. Editor of Comprehensive Biochemistry. Last Updated: Oct 21, 2020 See Article History. Alternative Title: physiological chemistry. Biochemistry is the science in which chemistry is applied to the study of living organisms & the atoms and molecules which comprise living organisms.Â  Biochemistry is the science in which chemistry is applied to the study of living organisms and the atoms and molecules which comprise living organisms. Take a closer look at what biochemistry is and why the science is important. What Is Biochemistry? Biochemistry is the study of the chemistry of living things. This includes organic molecules and their chemical reactions. Biochemistry is the study of the chemical reactions that take place inside organisms. It combines elements from both biology and chemistry. Biochemistry became a separate discipline in the early 20th Century. Biochemistry is the study of chemical reactions in living beings, and of biological molecules in general. It is important to cell biology and physiology. The study of biochemistry involves enzymes, nucleic acids, carbohydrates, sugars, proteins, and lipids. In the body, most of the molecules are polymers built of long chains of smaller molecules. Biochemistry studies the chemical transformations which produce these small building-block molecules, and which produce energy from food.