

Liverpool John Moores University

Title: METABOLISM IN HEALTH AND DISEASE
Status: Definitive
Code: **4001BCBMOL** (101425)
Version Start Date: 01-08-2011

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ4 **Credit Value:** 12.00 **Total Delivered Hours:** 37.50

Total Learning Hours: 120 **Private Study:** 82

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	27.000
Practical	9.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Exam: Multiple choice and short answer questions.	60.0	1.50
Practice	AS2	Laboratory book assessment.	40.0	

Aims

To provide a basic introduction to cellular metabolic pathways in health and disease including their genetic and biochemical control.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe the major metabolic pathways of cellular metabolism.
- 2 Identify the inter-relationships and links between the various metabolic pathways in health and disease..
- 3 Describe basic genetic inheritance and link this to human disease.
- 4 Analyse and present basic biochemical data in the form of a practical report.

Learning Outcomes of Assessments

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

EXAM	1	2	3	
CW	1	2	3	4

Outline Syllabus

Cellular energy metabolism; catabolism of dietary components for energy provision. Glycolysis, fates of pyruvate. Gluconeogenesis, glycogen synthesis and breakdown. TCA cycle. Protein catabolism as a source of TCA and glycolytic intermediates. Fatty acid synthesis and lipid breakdown. Energy yield of metabolic pathways. Comparisons of fats and carbohydrates as energy sources. Amino Acid structure, essential and non-essential amino acids, nitrogen balance, proteins in health and disease. Basic genetics, population variation, genetic control and link to disease of pathways. Biochemical and enzymic control of metabolic pathways. Clinical implications of metabolic pathways.

Learning Activities

Lectures and practicals.

References

Course Material	Book
Author	Lehninger, A.L. and Nelson, D.L.
Publishing Year	2005
Title	Lehninger's Principles of Biochemistry.
Subtitle	
Edition	4th ed.
Publisher	W.H. Freeman
ISBN	0716743396

Course Material	Book
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Author	Campbell, M.K. and Shaun, O.F.
Publishing Year	2003
Title	'Biochemistry.'
Subtitle	
Edition	4th ed.
Publisher	Thomson Learning Publishers.
ISBN	0030348498

Course Material	Book
Author	Lewis, R.
Publishing Year	2004
Title	'Human Genetics.'
Subtitle	
Edition	6th ed.
Publisher	WCB-Mcgraw-Hill
ISBN	0071111573

Course Material	Book
Author	Hames, B. D. and Hooper, N.M.
Publishing Year	2000
Title	'Instant Notes in Biochemistry.'
Subtitle	
Edition	2nd ed.
Publisher	Bios Scientific Publishers
ISBN	1859961428

Course Material	Book
Author	Benyon, S.
Publishing Year	2003
Title	'Metabolism and Nutrition.'
Subtitle	
Edition	2nd ed.
Publisher	Mosby, Harcourt Publications Ltd.
ISBN	072343297X

Course Material	Book
Author	Horton, H.R.
Publishing Year	2005
Title	'Principles of Biochemistry.'
Subtitle	
Edition	4th ed.
Publisher	Prentice Hall Publishers
ISBN	0131453068

Course Material	Book
Author	Reed, R., Holmes, D., Weyers, J. and Jones, A.
Publishing Year	2003

Title	'Practical Skills in Biomolecular Sciences'
Subtitle	
Edition	2nd ed.
Publisher	Pearson Education Publishers
ISBN	0130451428

Notes

This module will provide an insight into the cellular metabolic pathways. The biochemical and genetic control of these pathways will be discussed together with their role in health and disease.