MODULE DESCRIPTOR

Module Title

Biochemistry Of Eukaryotes And Prokaryotes

Reference	AS2101	Version	2
Created	August 2021	SCQF Level	SCQF 8
Approved	February 2018	SCQF Points	15
Amended	August 2021	ECTS Points	7.5

Aims of Module

To give students a comprehensive understanding of the principles of biochemistry and metabolism relevant to animals, plants and microbes.

Learning Outcomes for Module

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

1	Describe primary pathways/cycles for carbohydrate, lipid and nitrogenous compound metabolism in selected organisms.
2	Demonstrate appreciation of secondary metabolic pathways in different organisms.
3	Explain biological metabolic intermediaries and end-products of pathways and cycles in selected organisms.
4	Describe major control sites in selected pathways and their control/integration under different environmental conditions.
5	Analyse and interpret scientific data from practicals.

Indicative Module Content

Molecules relevant to the study of biochemistry. Enzymes. Pyruvate and Acetyl CoA as crossroad molecules. Glycolysis, gluconeogenesis, glycogen. Citric acid cycle and electron transport chain. Oxidative phosphorylation and production of ATP. Carbon and nitrogen cycles. Proteins and amino acids. Fatty acid and lipid metabolism. Membrane channels, partitioning and compartmentalisation. Microbial pathways and cycles and use of microbial metabolism as a screening method. Integration of metabolism. Bacterial mutants to analyse bacterial metabolic pathways.Growth of yeast under aerobic versus anaerobic conditions. Fructose-Glucose concentration equilibrium analysis.

Module Delivery

A combined approach utilising formal lectures and laboratories.

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Indicative Student Workload	Full Time	Part Time
Contact Hours	45	N/A
Non-Contact Hours	105	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

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

Component 1

Type:	Examination	Weighting:	60%	Outcomes Assessed:	1, 2, 3, 4
Description:	Unseen closed book examination				

Component 2

Type:	Coursework	Weighting:	40%	Outcomes Assessed:	5
Description:	laboratory report				

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 of Module Grade D is required to pass the module, 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, BA, BB, BC, CA
C	AE, BD, BE, CB, CC, CD, DA, DB, EA
D	CE, DC, DD, DE, 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	Successful completion of Stage 1 of the course or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1 BERG J. M. *Biochemistry.* Current Edition. W. H. Freeman / Palgrave Macmillan

2 MADIGAN M. T. *Brock biology of microorganisms* Current Edition. Pearson Education