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## MODULE DESCRIPTOR

### Module Title

Biochemistry Of Eukaryotes And Prokaryotes

Reference	AS2101	Version	1
Created	September 2017	SCQF Level	SCQF 8
Approved	February 2018	SCQF Points	15
Amended		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.

**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
<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:	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**

This module is assessed using the two components of assessment as detailed in the Assessment Plan. To pass this module, candidates must achieve a Module Grade D or better.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	Final aggregate mark of 70% or greater and a minimum of 35% in C1 and C2
<b>B</b>	Final aggregate mark of between 60-69% and a minimum of 35% in C1 and C2
<b>C</b>	Final aggregate mark of between 50-59% and a minimum of 35% in C1 and C2
<b>D</b>	Final aggregate mark of between 40-49% and a minimum of 35% in C1 and C2
<b>E</b>	MARGINAL FAIL. Final aggregate of between 35-39% and a minimum of 35% in C1 and C2
<b>F</b>	FAIL. A mark of less than 35% in either component
<b>NS</b>	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