

Module code

SPB-2208

Type of module

Undergraduate: Biological Sciences – Major Core

Principles of Biochemistry



Modular credits 4	Total student engagement 56 hours	Prerequisite SPB-1203 (Skills in Biological Sciences)	Anti-requisite None
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Aims

To introduce the chemical principles of biological systems with emphasis on proteins and metabolism. To describe protein structure, function, and energy processes in cells. To integrate theory and practice to build skills in analysing biochemical reactions.

Module learning outcomes (MLO)

On successful completion of this module, a student will be expected to be able to:

MLO 1

Analyse the fundamental chemical principles governing biological systems, including the properties of amino acids, proteins, and metabolic processes.

MLO 2

Analyse the key concepts of thermodynamics and bioenergetics in relation to energy conservation and conversion in living cells.

MLO 3

Utilise bioinformatics tools to analyse protein structures, interactions, and complexes.

MLO 4

Examine enzyme kinetics, including factors affecting enzyme activity, regulation, and catalytic efficiency.

MLO 5

Demonstrate the ability to perform relevant experimental techniques and critically analyse the resulting data.

Module contents

Chemistry in Biological Sciences

Amino acids and proteins

Bioinformatics of protein complexes

Basic concepts of thermodynamics and bioenergetics

Enzyme kinetics, characteristics and regulation

Carbohydrate metabolism

Assessment

50%

Examination

50%

Coursework

Examination
50%

10%

Laboratory reports
30%

10%

Examination — 50%

Tutorial assignments — 10%

Laboratory reports — 30%

Class tests — 10%

Formative assessment	Summative assessment	
Weekly discussion and feedback	COMPONENT	WEIGHTING
	Examination	50%
	Coursework	50%
	Individual	50%
	Tutorial assignments	10%
	Laboratory reports	30%
	Class tests	10%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1	PLO 1 (Fundamental Theoretical Knowledge in Biology)	2	PLO 2 (Application of Scientific Methods and Data Analysis)
3	PLO 3 (Integrated Laboratory, Field and Technical Skills)	4	PLO 4 (Critical Thinking and Problem-Solving Skills)
5	PLO 5 (Sustainability and Responsible Practice)		

Sustainability concept addressed

4	SDG 4 Quality Education
3	SDG 3 Good Health and Well-Being
12	SDG 12 Responsible Consumption and Production

Digital skills/software used (not limited to)

Microsoft Office software (e.g. Word, Excel)
Bioinformatic tools (e.g. Protein Data Bank or PDB, PyMOL)
Application software (e.g. R statistical program)
eLearning platforms (e.g. CANVAS, Zoom)

Micro-credentialling option No	Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes No
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Document details

Office **ODVCE** Document date **29 June 2026** Status **New**