

Module code

SPB-3415

Type of module

Undergraduate: Biological Sciences – Elective

Nutritional Biochemistry



Modular credits

4

Total student
engagement

56 hours

Prerequisite

SPB-2202 (Cells,
Biomolecules and
Microbiology) SPB-
2208 (Principles of
Biochemistry)

Anti-requisite

None

Aims

To explore the role of nutrition in regulating biological processes. To examine how micro- and macronutrients interact at the molecular level to drive biochemical changes, highlighting their impact on growth, development and physiological function.

Module learning outcomes (MLO)

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

MLO 1

Analyse how nutrients influence gene expression, including chromatid remodelling, transcription and translation.

MLO 2

Analyse the experimental methodologies applied to assess how nutrients influence gene expression.

MLO 3

Analyse how micro- and macronutrients affect endocrine responses, tissue growth and development across the lifespan.

MLO 4

Apply the concept of nutrigenetics and nutrigenomics in nutrition research.

MLO 5

Evaluate the molecular basis of diseases affected by nutrition and strategies for personalised nutrition.

Module contents

General principles of human nutrition	Food digestion, absorption, and distribution to the tissues	Mechanisms of transport, storage and mobilisation of dietary protein, carbohydrates and lipids
Major endocrine organs affected by nutrients	Nutrition and epigenetics	Nutritional regulation of gene expression
Nutrigenetics and nutrigenomics	Nutritional status and non-communicable diseases	Personalised nutrition

Assessment

60% **40%**
Examination Coursework



■ Examination — 60% ■ Written assignments — 10% ■ Written practical reports — 10% ■ Class tests — 10%
■ Oral presentation — 10%

Formative assessment

Weekly discussion and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	30%
Written assignments	10%
Written practical reports	10%
Class tests	10%
Group	10%
Oral presentation	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

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

Digital skills/software used (not limited to)

- Microsoft Office software (e.g. Word, Excel, PowerPoint)
- Application software (e.g. Web browsers)
- Graphics software (e.g. Canva)
- Academic databases and reference management software (e.g. PubMed, Scopus database)
- Bioinformatic tools (e.g. GenBank, Protein Data Bank or PDB and PyMOL)
- eLearning platforms (e.g. CANVAS, Zoom)

Micro-credentialling option

No

Stackable towards GenBESTARI Undergraduate Degree Programme or other relevant Lifelong Learning Programmes

No

Document details

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