

Module code

SPC-3404

Type of module

Undergraduate: Chemistry – Elective



Molecules of Life

Modular credits

2

Total student
engagement

28 hours

Prerequisite

SPC-1202 Fundamental
Concepts in Chemistry

Anti-requisite

None

Aims

To provide students with an understanding on selected bio-organic compounds and to utilise the concepts for the reactions and biosynthesis of natural products.

Module learning outcomes (MLO)

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

MLO 1

Analyse the structural features, functions, and classifications of bio-organic compounds including carbohydrates, amino acids and proteins, nucleic acids, terpenes, and alkaloids.

MLO 2

Analyse the pathways and mechanisms involved in the biosynthesis of natural products.

MLO 3

Evaluate and design problem-solving approaches by applying relevant theories and concepts to biosynthetic processes of natural products.

Module contents

Structures and reactions of
carbohydrates

Structures, conformations,
strategies and syntheses of
proteins

Isolation, chemical structures,
metabolism and biological
functions of nucleic acids

Structures, reactions and
biosynthesis of selected terpenes

Extraction, structures and
properties of selected alkaloids

Assessment

60%

Examination

40%

Coursework



■ Examination — 60% ■ Quizzes/Tests — 15% ■ Assignments — 15% ■ Presentations — 10%

Formative assessment

Weekly discussion
and feedback

Summative assessment

COMPONENT	WEIGHTING
Examination	60%
Coursework	40%
Individual	30%
Quizzes/Tests	15%
Assignments	15%
Group	10%
Presentations	10%

Graduate attributes and skills

Programme learning objectives (PLO) addressed

1	PLO 1 (Fundamental Knowledge in Chemistry)	3	PLO 3 (Critical Thinking and Problem-Solving Skills)
4	PLO 4 (Communication and Collaborative Skills)	6	PLO 6 (Digital Literacy and Lifelong Learning Skills)

Sustainability concept addressed

3	SDG 3 Good Health and Well-Being
4	SDG 4 Quality Education

Digital skills/software used (not limited to)

- Word processing software (e.g. Microsoft Word)
- Presentation software (e.g. PowerPoint)
- Organisational tools (e.g. Outlook calendar)
- Chemical drawing software (e.g. ChemSketch or ChemDraw)
- Learning management system (e.g. Canvas)

Micro-credentialling option

No

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

No

Document details

Office ODVCE Document date 27 June 2026 Status New Approval GBF (12/02/2026)