

Course Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Course Title: BIOCHEMISTRY FOR HEALTH & NUTRITION

Course ID: SCBCH2000

Credit Points: 15.00

Prerequisite(s): SCCHM1000

Co-requisite(s): Nil

Exclusion(s): SCBCH2001

ASCED: 010901

Description of the Course:

This course will provide students with foundation studies in biochemistry especially relevant to further studies in food and nutrition. The course begins with an introduction to the cellular environment and interactions that stabilise biological macromolecules. This is followed by studies of the major classes of biological molecules: amino acids, proteins, nucleotides, nucleic acids, carbohydrates and lipids. The structure and function of biological membranes, and mechanisms of degradation and turnover of biological molecules, are also considered.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Does Recognition of Prior Learning apply to this course? No

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Describe the structures of biological molecules and their roles in biological processes.
- K2.** Discuss the relationship between the structure of macromolecules and their biological function.
- K3.** Differentiate between cellular components that are recycled and those that are degraded.
- K4.** Discuss the buffering mechanisms that operate in biological systems.

Skills:

- S1.** Relate the structure of biological macromolecules to their function.
- S2.** Relate structural dysfunction to human disease.
- S3.** Locate, interpret, evaluate and communicate biochemical information.

Application of knowledge and skills:

- A1.** Suggest why specific metabolic process dysfunctions, and dietary imbalances, lead to disease.
- A2.** Critically evaluate scientific and popular literature.

Course Content:

Topics may include:

- Biomolecules and key functional groups; Small molecules as building blocks; Non-covalent interactions
- Water as the matrix of life: The cellular environment; Diffusion and osmosis; pH balance and buffering
- Amino acids and peptides: Classes of amino acids; Peptide synthesis; Biologically active amino acids and peptides
- Proteins: Protein structure; Protein folding; Globular and fibrous proteins
- Nucleotides and nucleic acids: DNA and RNA; Overview of gene expression; Genetic mutations
- Carbohydrates: Monosaccharides and disaccharides; Polysaccharides; Glycoconjugates
- Lipids and membranes: Lipid classes; Membrane structure; Transport of molecules and ions across membranes
- Degradation and turnover of biological molecules: Molecules and components that are recycled; Molecules that are degraded; Lysosomes and the proteasome

Graduate Attributes

The Federation University Federation graduate attributes (GA) are entrenched in the [Higher Education Graduate](#)

[Attributes Policy](#) (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1, K2, K3, K4, S2, A1	AT1, AT2
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	Not applicable	Not applicable
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	S2, A2	AT3
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	S2, A1, A2	AT3
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
S1-S3, A1- A2, and any of K1-K4	Research and reporting on relevant topics	Written tasks	25-35
K1-K4	Recall and comprehension of fundamental concepts	On-line quizzes	25-35
K1-K4, S1, A1	Written responses of varying length	Test	35-45

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a program level. Although courses must undertake MiCS mapping, there is NO expectation that courses will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry
4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS program level reporting highlights how each program embraces the principals and practices associated with the Co-Operative Model. Evidence of program alignment with the MiCS, can be captured in the Program

Modification Form.

MICS Mapping has been undertaken for this course

No

Date:

Adopted Reference Style:

Australian Harvard

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)