UNSW Course Outline

ZPEM2114 Biological Chemistry - 2024

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General Course Information

Course Code : ZPEM2114
Year : 2024
Term : Semester 2
Teaching Period : Z2
Is a multi-term course? : No
Faculty : UNSW Canberra
Academic Unit : UC Science
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : UNSW Canberra at ADFA
Campus : UNSW Canberra
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The course highlights the role of chemistry in biology and the biological activity in living cells. The structure of proteins and enzymes including stability, conformation and function will be discussed. The enhancement of reactivity in enzymic reactions, from both a kinetic and

mechanistic viewpoint, and methods of enzyme inhibition will be discussed. The structure and function of DNA and RNA will also be examined including the topics of replication, transcription, and translation. A focus on how drugs interact with biological systems will also be highlighted using examples from new and marketed drugs.

Course Aims

The course aims to introduce students to important aspects of biological chemistry, in particular to proteins and nucleic acids. This course builds on the fundamental organic and inorganic chemistry presented in level 2 chemistry courses, and illustrates how cellular function can be explained in terms of chemical structure. The course also introduces students to drug development techniques that are used to treat biological disorders.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Students will display an understanding of protein structure, and then by using their knowledge of chemical reactivity show an understanding of how protein structure is translated into function.
CLO2 : Students will display an understanding of nucleic acid structure and how that translates to DNA and RNA shape and function.
CLO3 : Students will display an understanding of the biological functions of a cell.
CLO4 : Students will display an understanding of the way medicines function in the body
CLO5 : Students will display a practical and theoretical understanding of biological laboratory procedures.

Course Learning Outcomes	Assessment Item
CLO1 : Students will display an understanding of protein structure, and then by using their knowledge of chemical reactivity show an understanding of how protein structure is translated into function.	• Laboratory Component • Class tests • End of Session Exam
CLO2 : Students will display an understanding of nucleic acid structure and how that translates to DNA and RNA shape and function.	• Laboratory Component • Class tests • End of Session Exam
CLO3 : Students will display an understanding of the biological functions of a cell.	• Laboratory Component • Class tests • End of Session Exam
CLO4 : Students will display an understanding of the way medicines function in the body	• Laboratory Component • Class tests • End of Session Exam
CLO5 : Students will display a practical and theoretical understanding of biological laboratory procedures.	• Laboratory Component

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Laboratory Component Assessment Format: Individual	30%	
Class tests Assessment Format: Individual	40%	
End of Session Exam Assessment Format: Individual	30%	

Assessment Details

Laboratory Component

Assessment Overview

Several practical lessons worth in total 30%

Course Learning Outcomes

- CLO1 : Students will display an understanding of protein structure, and then by using their knowledge of chemical reactivity show an understanding of how protein structure is translated into function.
- CLO2 : Students will display an understanding of nucleic acid structure and how that translates to DNA and RNA shape and function.
- CLO3 : Students will display an understanding of the biological functions of a cell.
- CLO4 : Students will display an understanding of the way medicines function in the body
- CLO5 : Students will display a practical and theoretical understanding of biological laboratory procedures.

Detailed Assessment Description

5 x 4 hou lab sessions held throughout the semester on odd-numbered weeks (excluding public holidays and MTD). The use of generative artificial intelligence will be permissable for lab reports, but kept to simple editing assistance. See UNSW policy UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf

Class tests

Assessment Overview

Several class tests worth in total 40%

Course Learning Outcomes

- CLO1 : Students will display an understanding of protein structure, and then by using their

knowledge of chemical reactivity show an understanding of how protein structure is translated into function.
- CLO2 : Students will display an understanding of nucleic acid structure and how that translates to DNA and RNA shape and function.
- CLO3 : Students will display an understanding of the biological functions of a cell.
- CLO4 : Students will display an understanding of the way medicines function in the body

Detailed Assessment Description

5 tests held throughout semester on the lecture material. The marks from the best 4 results will be taken into the assessment for the course. Given the nature of tests no assistance from generative artificial intelligence will be possible. See UNSW policy UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf

End of Session Exam

Assessment Overview

Comprehensive 2hr exam at the end of session

Course Learning Outcomes

- CLO1 : Students will display an understanding of protein structure, and then by using their knowledge of chemical reactivity show an understanding of how protein structure is translated into function.
- CLO2 : Students will display an understanding of nucleic acid structure and how that translates to DNA and RNA shape and function.
- CLO3 : Students will display an understanding of the biological functions of a cell.
- CLO4 : Students will display an understanding of the way medicines function in the body

Detailed Assessment Description

A final exam held in-person in teh exam session covering all the material of the course. Given the nature of tests no assistance from generative artificial intelligence will be possible. See UNSW policy UNSW_guidelines_Use-of-Generative-AI-in-assessments_8.02.23.pdf

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Students who obtain 35 or more marks (50%) in the theory component and receive 15 (50%) or more in the laboratory component will pass the subject.

Course Schedule

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

3 x 1 hour lectures in a week that will also incoporate tutorial style interaction. 5 x 4 hour labs held on odd-numbered weeks. Exceptions are made for military training days and public holidays.

Course Resources

Course Evaluation and Development

Students will be asked to complete the myExperience survey towards the end of this course. Student opinions really do make a difference. Refer to the Moodle site for this course to see how the feedback from previous students has contributed to the course development.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Tristan Reekie					No	Yes