



BCM210 – Foundations and Techniques in Biochemistry

What is your subject about? A brief overview

This subject provides an outline of the structure and function of biological macromolecules (proteins, carbohydrates, lipids and nucleic acids); the major metabolic and bioenergetics pathways within cells; and practical experience in common techniques used in biochemistry. It provides the basis for further studies in metabolism, molecular and cell biology, genetics, immunology and microbiology, physiology, plant science, biotechnology and disease processes.

Subject Workload

This is a standard 8 point subject which CSU Academic Senate policy states should require you to spend a total of between 140-160 hours engaged in the learning and teaching activities. The expectation is that students will spend at least 18-20 hours per week on this subject.

Learning outcomes

On successful completion of this subject, students will:

- be able to describe the structure and function of the four major classes of biological macromolecules (proteins, carbohydrates, lipids and nucleic acids) and understand the relationship between structure and function;
- be able to describe the properties of enzymes as biological catalysts;
- be able to describe the role of energy in living cells, with particular reference to the concept of free energy and the role of ATP;
- be able to describe the major metabolic pathways used to synthesise and consume ATP;
- be able to perform basic techniques in biochemistry such as spectrophotometric protein assays, chromatography, electrophoresis, and enzyme kinetics assays;
- be able to describe common techniques used in the study of biochemistry

Assumed knowledge

Students are assumed to have successfully completed first year level chemistry (CHM107, CHM108 or equivalent). Although there are no formal pre-requisites for this subject, students who do not bring a grasp of foundation principles in chemistry often struggle with the subject matter. Please be responsible to yourself and reconsider enrolling in this subject if you do not have the requisite chemistry background. Thank you.

Learning, teaching and support strategies

- Lecture notes and recordings: All students will have access to .pdf lecture slides. These will be uploaded to the CSU Interact site and placed under "Resources". Lecture recordings will be uploaded to CSU Replay.
- CSU Interact: All students will have access to CSU Interact2 and are strongly encouraged to read forum postings regularly.
- Online Tutorials: Tutorial questions will be issued throughout the semester to allow you to assess your level of understanding. These are the type of questions you will encounter during the final examination.
- Practical's: There are five practical's, three hours each, to be undertaken at the Wagga Wagga campus during the residential school period. Practical introductory talks of 30-45 min for each of practical's 1-5 will be pre-recorded on CSU-Replay to open up more time to complete practicals. These talks contain both explanatory information relevant to particular practicals, as well as occupational health and safety instructions. It is therefore compulsory for students to watch the associated CSU Replay video recording before attending each respective practical. Students will be asked to sign a statement that they have watched the introductory talk. Because of legal issues surrounding the occupational health and safety instructions, students who do not sign this statement for a particular practical, will not be permitted to attend that practical, and will be asked to leave the laboratory buildings.

Attendance

Attendance at Residential School is compulsory (three days including 5 practicals and the Practical exam).