BCMB20005 Techniques in Molecular Science

Credit Points:	12.5
Level:	2 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Semester 2, Parkville - Taught on campus. An enrolment quota of 210 students per semester (50-54 students per practical class over 4 days per week) applies to this subject. For detailed information on the quota subject application process, refer to the Quota Subject link on the MDHS Student Centre website: http://sc.mdhs.unimelb.edu.au/quota-subjects
Time Commitment:	Contact Hours: 5 hours per week: 1 x lecture (online), 1 x tutorial, 1 x practical class (3 hours) Total Time Commitment: 60 contact hours per semester with an estimated total time commitment of 170 hours.
Prerequisites:	For BSc degree One of: **Subject** / **Study Period Commencement:** / **Credit Points:** CHEM10003 Chemistry 1 / Semester 1, Semester 2 / 12.50 OR **610-121 Chemistry** A OR **610-141Chemistry A** AND One of: **Subject** / **Study Period Commencement:** / **Credit Points:** CHEM10004 Chemistry 2 / Summer Term, Semester 2 / 12.50 OR **610-122 Chemistry B** OR **610-142 Chemistry B** For BBiomed degree One of: **Subject** / **Study Period Commencement:** / **Credit Points:** CHEM10006 Chemistry for Biomedicine / Semester 1 / 12.50 CHEM10009 Advanced Chemistry for BioSciences / Semester 1 / 12.5 Other combinations of subjects that provide a similar background may be considered by the coordinator. Pre-requisites CANNOT be taken concurrently.
Corequisites:	None
Recommended Background Knowledge:	For BSc students Level 1 biology is recommended. **Subject** / **Study Period Commencement:** / **Credit Points:**

BCMB20002 Biochemistry and Molecular Biology	Semester 1, Semester 2	12.50

is strongly recommended. Students may take BCMB20002 and BCMB20005 concurrently or in alternate semesters.

Non Allowed Subjects:

Students cannot enrol in and gain credit for this subject if previously obtained credit for pre-2009 subjects:
Techniques in Protein and Gene Technology (521-220),
Integrated Biomedical Science I (521-213),
Integrated Biomedical Science (521-225),
Integrated Biomedical Science II (536-250) or
Integrated Biomedical Science II (536-225).

Core Participation Requirements:

For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability

Coordinator:

Dr Amber Willems-Jones

Contact:

Subject Coordinator

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Subject Overview:

This is a subject suitable for students taking life science and biomedical subjects. It offers an introduction to the techniques used in many areas of molecular science.

Students taking the course will develop practical skills in the laboratory and an understanding of the techniques used in biochemistry and molecular biology to investigate biological problems.

Students will develop practical and research skills by exploiting the physico-chemical properties of molecules in a variety of experimental techniques, and interpreting the data they generate.

Students will apply these skills to the:

separation and characterisation of proteins; and
isolation, manipulation and characterisation of nucleic acids: and
examination of cellular structures.

Students will report on their practical work and learn to relate principles to practical outcomes.

The lectures will cover the theory of standard laboratory techniques central to biochemistry and molecular biology and new methods driving the fields of genomics and proteomics.

Learning Outcomes:

Upon completion of the subject, the student should:

1. understand the theory of many techniques used in molecular and cell biology and protein biochemistry;
2. have developed the skills necessary to carry out experimental protocols in molecular biology, protein biochemistry and cell biology, and generate data for analysis;
3. have developed the ability to perform biochemical calculations and analyse data (including trouble-shooting errors or inconsistencies) and make quantitative assessments of experimental results;

	4 understand how to collate and present data in a conventional standardised format for concise scientific reports; 5 have developed the ability to work effectively in the laboratory, either in small groups or individually.
Assessment:	Continuous assessment: weekly written reports of experiments (39%) Continuous assessment: weekly performance in practical classes (10%) 40 minute Mid-semester test (7.5%) Practical class-based exam, held last week of the semester (7.5%); Weekly computer-based quizzes (6%) 2-hour written final examination held during the examination period (30%). Students who are absent for more than 20% of practical classes and/or tutorials in this subject might be ineligible for the final exam assessment (coordinator decision).
Prescribed Texts:	None
Recommended Texts:	Keith Wilson and John Walker, Principles and Techniques of Biochemistry and Molecular Biology, 6th Ed (2005) Cambridge University Press.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	By completion of the subject, students should have: # gained hands-on experience in a number of biochemical techniques; # analysed experimental data and made quantitative assessments of their results; # learnt to write concise and accurate scientific reports; # gained the ability to understand and follow simple experimental protocols; # gained experience in working with others towards common goals.
Notes:	# This subject is available for science credit to students enrolled in the BSc and BBiomed. # This subject is a specific prerequisite for completion of majors in Biochemistry and Molecular Biology, Pathology and the Biotechnology-Biochemistry stream. # If a BSc student wishes to complete a major in Biochemistry and Molecular Biology, they must complete this subject and **'Biochemistry and Molecular Biology' (BCMB20002)**'. # If a BBiomed student wishes to complete a major in Biochemistry and Molecular Biology, they must also complete **'Molecular and Cellular Biomedicine' (BIOM20001)**. # It is strongly recommended that a student wishing to complete a Biochemistry major also completes **'Biochemical Regulation of Cell Function' (BCMB20003)**. # Students must enrol for one of the available laboratory days via the student portal before the start of the semester. Be aware that each day has limited places. # Students undertaking this subject are required to have regular access to an internet-enabled computer.
Related Majors/Minors/ Specialisations:	Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED