

Biochemistry and Molecular Biology

| Year and Campus: | 2014 | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|----------------|----------------------------|----------------|--|------------|-------|--|------------|-------|--|------------------------|-------|---------|----------------------------|----------------|---|------------|-------|--|------------|-------|---|-------------------------------------|-------|
| Coordinator: | Associate Professor Marie Bogoyevitch Department of Biochemistry and Molecular Biology | | | | | | | | | | | | | | | | | | | | | | | | |
| Contact: | Email: marieb@unimelb.edu.au (mailto:marieb@unimelb.edu.au) | | | | | | | | | | | | | | | | | | | | | | | | |
| Overview: | Biochemistry and Molecular Biology are key biological science disciplines. The knowledge and techniques of the disciplines are applied in many biological fields and have fuelled rapid advances in medical research and biotechnology. This major will provide the springboard for students to enter careers including medical research, biotechnology, agricultural and medical support industries, education etc. This major will develop knowledge in key basic biological processes as well as more specialized areas of molecular science. In addition, an emphasis is placed on developing a foundation in practical skills required for a career as a laboratory scientist. The major will also develop skills in communication, team-work and research essential in the modern scientific workplace. | | | | | | | | | | | | | | | | | | | | | | | | |
| Learning Outcomes: | <p>By the end of this major the student should have developed knowledge of:</p> <ul style="list-style-type: none"> # current concepts concerning the molecular bases of genome structure and the mechanisms and consequences of the regulation of gene expression in eukaryotic organisms; # theoretical background to recombinant DNA technology and an appreciation of its biomedical and biotechnological applications; # the significance and applications of human and related genome sequencing programs and bioinformatic techniques used to analyse these data; # how functional genomic approaches can elucidate gene function and can be applied to study human diseases such as cancer; # the structural properties of proteins, the techniques used to study them and how protein engineering is used for investigating structure-function relationships; # the chemistry of basic biological molecules, how they are synthesised and broken down. <p>In addition, students will gain:</p> <ul style="list-style-type: none"> # practical experience in a variety of biochemical techniques, methods for keeping scientific records and scientific report writing, provide experience in simple experimental design and problem solving; and # experience in critical evaluation of scientific literature and to develop skills in presentation of scientific data. | | | | | | | | | | | | | | | | | | | | | | | | |
| Structure & Available Subjects: | Completion of 50 points of study at Level 3. | | | | | | | | | | | | | | | | | | | | | | | | |
| Subject Options: | <p>All three of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB30001 Protein Structure and Function</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>BCMB30002 Functional Genomics and Bioinformatics</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>BCMB30010 Advanced Techniques in Molecular Science</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus one elective selected from</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BCMB30003 Molecular Aspects of Cell Biology</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>BCMB30004 Cell Signalling and Neurochemistry</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>BIOM30003 Biomedical Science Research Project</td> <td>Summer Term, Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> | Subject | Study Period Commencement: | Credit Points: | BCMB30001 Protein Structure and Function | Semester 2 | 12.50 | BCMB30002 Functional Genomics and Bioinformatics | Semester 1 | 12.50 | BCMB30010 Advanced Techniques in Molecular Science | Semester 1, Semester 2 | 12.50 | Subject | Study Period Commencement: | Credit Points: | BCMB30003 Molecular Aspects of Cell Biology | Semester 1 | 12.50 | BCMB30004 Cell Signalling and Neurochemistry | Semester 2 | 12.50 | BIOM30003 Biomedical Science Research Project | Summer Term, Semester 1, Semester 2 | 12.50 |
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| BCMB30002 Functional Genomics and Bioinformatics | Semester 1 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | |
| BCMB30010 Advanced Techniques in Molecular Science | Semester 1, Semester 2 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | |
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| BCMB30003 Molecular Aspects of Cell Biology | Semester 1 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | |
| BCMB30004 Cell Signalling and Neurochemistry | Semester 2 | 12.50 | | | | | | | | | | | | | | | | | | | | | | | |
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| | BCMB30011 Metabolism and Nutrition | Semester 1 | 12.50 |
| | Or one third year level subject from one of the following majors: Cell and Developmental Biology, Chemistry, Genetics, Human Structure and Function, Microbiology, Infection and Immunology, Neuroscience, Pathology, Pharmacology, Physiology, Plant Science, Science Informatics, Zoology. | | |
| Notes: | This major is available to new generation Bachelor of Science students (B-SCI) and Bachelor of Biomedicine students. It is also available to Bachelor of Science students who commenced prior to 2008. The published structure of this major includes subjects available in the current year. Pre-2008 Bachelor of Science students who completed one or more Level 3 science subjects towards this major prior to 2010 should contact the Science Student Centre for advice on appropriate subjects to complete this major. | | |
| Related Course(s): | Bachelor of Arts and Bachelor of Science Bachelor of Biomedicine Bachelor of Commerce and Bachelor of Science Bachelor of Science | | |