BTCH90009 Genomics and Bioinformatics

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Lecture – 2 x 1-hour lecture per week for 9 weeks; Tutorial and practical class – 1 x 3-hour class for 5 weeks. Total Time Commitment: 170 hours
Prerequisites:	Students must have completed ONE of the following subjects (or the equivalent): <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>BCMB30002 Functional Genomics and Bioinformatics</td><td>Semester 1</td><td>12.50</td></tr><tr><td>GENE30002 Genes: Organisation and Function</td><td>Semester 1</td><td>12.50</td></tr></table> Master of Biotechnology students may have the right background to undertake this subject without the specific pre-requisite subjects above. Such students should contact Dr Matthew Digby (**mdigby@unimelb.edu.au (mailto:mdigby@unimelb.edu.au)**) for special enrolment approval.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
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 Alana Mitchell
Contact:	Subject Coordinator Dr Alana Mitchell **amitch@unimelb.edu.au (mailto:amitch@unimelb.edu.au)** **Administrative Coordination** **BiomedSci-AcademicServices@unimelb.edu.au (mailto:BiomedSci-AcademicServices@unimelb.edu.au)** **Master of Biotechnology students (for enrolment approval only)** Dr Matthew Digby **mdigby@unimelb.edu.au (mailto:mdigby@unimelb.edu.au)**
Subject Overview:	This subject describes current technologies used to sequence genomes - the starting point for comparative analyses of genes and proteins. The field of informatics has evolved to analyse and interpret large amounts of data generated by the new biotechnologies. Advanced topics will include transcriptome technologies, genome evolution and sequence similarity analysis

	techniques to identify protein orthologues and paralogues. The subject will cover bioinformatic analysis of protein structure and motifs at the secondary and tertiary levels, and modelling studies aimed at drug design. This subject will explore the latest developments in bioinformatics and detail how systems biology is helping to model complex biological processes.
Learning Outcomes:	The objectives of this subject are to provide students with knowledge of: # current concepts concerning the molecular basis of genome structure and gene expression; # theoretical background to genome analysis strategies and technologies and an appreciation of their biotechnological applications; # the significance and applications of human and other genome sequencing programs # bioinformatic techniques and applications in the analysis of protein structure and function
Assessment:	4 x 1500 word assignments at intervals during semester (80%) 1 x Oral presentation (10 min) at end of semester (20%)
Prescribed Texts:	None
Recommended Texts:	“Practical Bioinformatics" by Michael Agostino (Garland Science)
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:	Completion of this subject is expected to enhance the generic skills of students in: # the ability to interpret scientific literature and interpret data from electronic databases. # the ability to use information technology to acquire relevant knowledge for their understanding of the current status of the field and its relevance to society. # the capacity to integrate knowledge across disciplines. # the ability to comprehend a question, evaluate the relevant information and communicate an answer # the capacity for independent critical thought, rational inquiry and self-directed learning and research.
Related Course(s):	Master of Biotechnology Master of Science (Bioinformatics) Master of Science (Genetics)
Related Majors/Minors/ Specialisations:	Genetics Genetics