

BTCH90009 Genomics and Bioinformatics

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, 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 4 weeks. Total Time Commitment: Not available
Prerequisites:	A bachelor degree with a major in a Life Science or Chemistry and at least 65% in the major or equivalent. As part of their degree studies, applicants must have completed an appropriate sequence of genetics or biochemistry related subjects or equivalent to at least second year level. Students must have completed either 521-302 (Biochemistry) or 652-302 (Genetics) or the equivalent.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements for this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Assoc Prof Geoff Howlett
Contact:	Email: ghowlett@unimelb.edu.au
Subject Overview:	This subject describes current technologies used to sequence genomes, annotate functional units and identify gene families within organisms and between organisms. The field of informatics has evolved to analyse and interpret large amounts of data generated by new the biotechnologies. Advanced topics will include transcriptome technologies, genome evolution and tree building techniques to identify protein orthologs and paralogs. The subject will cover bioinformatic analysis of protein structure and motifs at the secondary and tertiary levels. This subject will explore the latest developments in bioinformatics and detail how systems biology is helping to model complex biological processes.
Objectives:	The objectives of this subject are to provide students with knowledge of: <ul style="list-style-type: none"> # 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:	One 2 hr written exam held in the examination period (40 %), One 1 hr written examination held mid semester (20 %), One 1000 word assignment due mid semester (20%), one 1000 word assignment assessment due at the end of semester (20%).
Prescribed Texts:	None
Recommended Texts:	“Understanding Bioinformatics” by Zvelebil and Baum (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: <ul style="list-style-type: none"># 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 Science (Biotechnology) Master of Science (Genetics)