POPH90124 Bioinformatics

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught online/distance. Distance
Time Commitment:	Contact Hours: None Total Time Commitment: 8-12 hours total study time per week
Prerequisites:	-

Subject	Study Period Commencement:	Credit Points:
POPH90015 Mathematics Background for Biostatistics	Semester 1, Semester 2	12.50
POPH90017 Principles of Statistical Inference	Semester 1, Semester 2	12.50
POPH90018 Data Management & Statistical Computing	Semester 1, Semester 2	12.50
POPH90148 Probability and Distribution Theory	Semester 1, Semester 2	12.50
POPH90120 Linear Models	Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	None
Contact:	Professor Graham Wood, Macquarie University Biostatistics Collaboration of Australia Email: bca@ctc.usyd.edu.au Website: www.bca.edu.au OR Academic Programs Office Melbourne School of Population Health Tel: +61 3 8344 9339 Fax: +61 3 8344 0824 Email: sph-gradinfo@unimelb.edu.au
Subject Overview:	Bioinformatics addresses problems related to the storage, retrieval and analysis of information about biological structure. This unit will provide a broad-ranging study of this application of quantitative methods in biology. Content will include: biology basics; population genetics; web-based tools, data sources and data retrieval; the analysis of single and multiple DNA or protein sequences; Hidden Markov Models and their applications; evolutionary models; phylogenetic trees; analysis of microarrays; functional genomics; use of R in bioinformatics applications.
Objectives:	To provide an introduction to the field of bioinformatics from a statistical point of view. This will include an understanding of the basic concepts of molecular biology.
Assessment:	Assignments 60% (three written assignments, each worth 20%, approx 6 hrs each) to be submitted during semester. Final at-home examination 40% (approx 12 hrs).

Prescribed Texts:	Durbin R, Eddy S, Krogh A, Mitchison G. Biological Sequence Analysis: Probabilistic Modes of proteins and nucleic acids. Cambridge University Press, 1998. (ISBN 978-0521629713) Special Computer Requirements: Stata statistical software and Excel (or equivalent) Resources Provided to Students: Printed course notes and assignment material will be provided to students via post.
Recommended Texts:	None
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:	On completion students should have developed independent problem solving, facility with abstract reasoning, clarity of written expression, sound communication of technical concepts.
Links to further information:	http://www.sph.unimelb.edu.au
Notes:	This subject is not available in the Master of Public Health.
Related Course(s):	Master of Biostatistics Postgraduate Certificate in Biostatistics Postgraduate Diploma in Biostatistics