

POPH90124 Bioinformatics

Credit Points:	12.50																		
Level:	9 (Graduate/Postgraduate)																		
Dates & Locations:	2010, 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:	- <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>POPH90015 Mathematics B'Ground for Biostatistics</td> <td>Not offered 2010</td> <td>12.50</td> </tr> <tr> <td>POPH90017 Principles of Statistical Inference</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POPH90018 Data Management & Statistical Computing</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POPH90148 Probability and Distribution Theory</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POPH90120 Linear Models</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	POPH90015 Mathematics B'Ground for Biostatistics	Not offered 2010	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
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Corequisites:	None																		
Recommended Background Knowledge:	None																		
Non Allowed Subjects:	None																		
Core Participation Requirements:	None																		
Coordinator:	Prof John Carlin																		
Contact:	Professor Graham Wood, Macquarie University Biostatistics Collaboration of Australia 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