

# POP90124 Bioinformatics

<b>Credit Points:</b>	12.50																		
<b>Level:</b>	9 (Graduate/Postgraduate)																		
<b>Dates &amp; Locations:</b>	2012, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught online/distance. Distance																		
<b>Time Commitment:</b>	Contact Hours: None Total Time Commitment: 8-12 hours total study time per week																		
<b>Prerequisites:</b>	- <table border="1" data-bbox="387 584 1485 958"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>POP90015 Mathematics Background for Biostatistics</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POP90017 Principles of Statistical Inference</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POP90018 Data Management &amp; Statistical Computing</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POP90148 Probability and Distribution Theory</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>POP90120 Linear Models</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	POP90015 Mathematics Background for Biostatistics	Semester 1, Semester 2	12.50	POP90017 Principles of Statistical Inference	Semester 1, Semester 2	12.50	POP90018 Data Management & Statistical Computing	Semester 1, Semester 2	12.50	POP90148 Probability and Distribution Theory	Semester 1, Semester 2	12.50	POP90120 Linear Models	Semester 2	12.50
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<b>Corequisites:</b>	None																		
<b>Recommended Background Knowledge:</b>	None																		
<b>Non Allowed Subjects:</b>	None																		
<b>Core Participation Requirements:</b>	None																		
<b>Coordinator:</b>	Prof John Carlin																		
<b>Contact:</b>	Professor Graham Wood, Macquarie University Biostatistics Collaboration of Australia Email: <a href="mailto:bca@ctc.usyd.edu.au">bca@ctc.usyd.edu.au</a> Website: <a href="http://www.bca.edu.au">www.bca.edu.au</a>  OR Academic Programs Office Melbourne School of Population Health Tel: +61 3 8344 9339 Fax: +61 3 8344 0824 Email: <a href="mailto:sph-gradinfo@unimelb.edu.au">sph-gradinfo@unimelb.edu.au</a>																		
<b>Subject Overview:</b>	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.																		
<b>Objectives:</b>	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.																		

<b>Assessment:</b>	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).
<b>Prescribed Texts:</b>	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.
<b>Recommended Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	On completion students should have developed independent problem solving, facility with abstract reasoning, clarity of written expression, sound communication of technical concepts.
<b>Links to further information:</b>	<a href="http://www.sph.unimelb.edu.au">http://www.sph.unimelb.edu.au</a>
<b>Notes:</b>	This subject is not available in the Master of Public Health.
<b>Related Course(s):</b>	Master of Biostatistics Postgraduate Certificate in Biostatistics Postgraduate Diploma in Biostatistics