

GENE30004 Genetic Analysis

Credit Points:	12.50																																				
Level:	3 (Undergraduate)																																				
Dates & Locations:	This subject is not offered in 2014.																																				
Time Commitment:	Contact Hours: 1 x one hour lecture per week; 1 x one hour tutorial per week; 1 x three hour practical per week. Total Time Commitment: Estimated total time commitment of 120 hours																																				
Prerequisites:	<p>All three of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE20003 Experiments in Genetics</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>GENE30001 Evolutionary Genetics and Genomics</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> </tbody> </table> <p>Bachelor of Biomedicine students: Both</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE30001 Evolutionary Genetics and Genomics</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> </tbody> </table> <p>Plus one of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE20003 Experiments in Genetics</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>BCMB20005 Techniques in Molecular Science</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>MIIM20002 Microbes, Infections and Responses</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MIIM20003 Experimental Microbiology</td> <td>Not offered 2014</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	GENE20003 Experiments in Genetics	Semester 1, Semester 2	12.50	GENE30001 Evolutionary Genetics and Genomics	Semester 1	12.50	GENE30002 Genes: Organisation and Function	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	GENE30001 Evolutionary Genetics and Genomics	Semester 1	12.50	GENE30002 Genes: Organisation and Function	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	GENE20003 Experiments in Genetics	Semester 1, Semester 2	12.50	BCMB20005 Techniques in Molecular Science	Semester 1, Semester 2	12.50	MIIM20002 Microbes, Infections and Responses	Semester 2	12.50	MIIM20003 Experimental Microbiology	Not offered 2014	12.50
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Corequisites:	None																																				
Recommended Background Knowledge:	<p>For Bachelor of Biomedicine students intending to complete a Genetics major:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>GENE20003 Experiments in Genetics</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	GENE20003 Experiments in Genetics	Semester 1, Semester 2	12.50																														
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Non Allowed Subjects:	None																																				
Core Participation Requirements:	<p>For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Coordinator and the Disability Liaison Unit. http://www.services.unimelb.edu.au/disability/</p>																																				

Contact:	Email: crobin@unimelb.edu.au (mailto:crobin@unimelb.edu.au)
Subject Overview:	The subject provides a capstone experience for students majoring in Genetics. It involves lectures and practical exercises which demonstrate advanced principles and techniques of genetic analysis from classical and population genetics to modern molecular technology. An emphasis is placed on student participation in experimental design and data analysis. Tutorials will be used to illustrate modern aspects of Genetics by the in-depth consideration of current publications in the field.
Learning Outcomes:	Upon completion of the subject, students should have: understood the application of genetic principles and different experimental designs in classical, molecular and genetic analysis; appreciated the advantages and disadvantages of these different designs; developed a detailed understanding of the techniques employed in experimental designs; experienced the use of particular laboratory techniques and analytical approaches in different areas of genetics; become proficient in the analysis and interpretation of data derived from their own experimentation and that of others; the use of bioinformatics to analyse complex genetic data; gained experience in the written and oral presentation of scientific data; and developed an appreciation of the scientific literature and how experimental results in Genetics are presented in publications.
Assessment:	Written assignments/problem solving tasks equivalent to a total of approximately 1000 words (15%); practical reports equivalent to a total of approximately 3000 words (30%) (The due dates for the written assignments/problem solving tasks and practical reports are distributed across the semester); Written report on a journal paper due late in the semester (20%) 20-minute oral presentation once during the semester (5%); a 2-hour written examination in the examination period (30%)
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # <u>Bachelor of Arts</u> (https://handbook.unimelb.edu.au/view/2014/B-ARTS) # <u>Bachelor of Commerce</u> (https://handbook.unimelb.edu.au/view/2014/B-COM) # <u>Bachelor of Environments</u> (https://handbook.unimelb.edu.au/view/2014/B-ENVS) # <u>Bachelor of Music</u> (https://handbook.unimelb.edu.au/view/2014/B-MUS) You should visit learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
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 a student in: the design and planning of work schedules to accomplish laboratory tasks; the ability to work collaboratively with others to accomplish common goals; the safe use of appropriate laboratory equipment and techniques for experiments; the assessment of data and its significance including statistical analysis and an ability to present data in the form of reports; the ability to communicate information both verbally and in writing; the application of computer technology for data retrieval, analysis and use of relevant information from the scientific literature; an appreciation of how modern science can be applied.
Notes:	This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BAsc or a combined BSc course. This subject is available for credit in the Bachelor of Biomedicine. This subject is required for a Genetics major.
Related Majors/Minors/Specialisations:	Biotechnology (pre-2008 Bachelor of Science) Genetics Genetics Genetics

Molecular Biotechnology (specialisation of Biotechnology major)
Science credit subjects* for pre-2008 BSc, BAsC and combined degree science courses
Science-credited subjects - new generation B-SCI and B-ENG.
Selective subjects for B-BMED