BIOL10005 Genetics & The Evolution of Life

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 18 hours of workshops (1 hour of theory workshop and 2 hours of practical workshop per fortnight), 6 hours of additional problem solving classes (1 hour per fortnight), 24 hours of pre-and post laboratory activities (2 hours per week), 24 hours of e-learning, online activities including independent learning tasks (2 hours per week). Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Credit cannot be gained for this subject and any of # 650-132 Biomed: Genetics & Biodiversity (prior to 2008)

Subject	Study Period Commencement:	Credit Points:
BIOL10003 Genes and Environment	Semester 2	12.50

Core Participation Requirements:	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/
Contact:	Biology Laboratory Level 5 Redmond Barry Building **Tel:** (03) 8344 4881 **Fax:** (03) 9347 0604 **Email: biology-info@unimelb.edu.au (mailto:biology-info@unimelb.edu.au)**
Subject Overview:	The objective of this subject is to familiarise students with modern concepts of genetics, animal and plant diversity and evolution. Topics studied include the nature of variation, inheritance, genes and chromosomes, human genetics, DNA replication, gene action and expression, population genetics, selection, the genetics of speciation, molecular evolution, evolutionary biology and the origin of life, classification of organisms diversity of life, communities, ecosystems and the relationship of organisms to their environment, human impact, preserving habitats and genetic variation.
Objectives:	At the completion of this subject, students should be able to understand: # the basic mechanisms of inheritance, recombination and mutation; # the structure of DNA, its replication and the molecular basis of gene action; # the nature of genetic variation in populations, natural selection, microevolution, reproductive isolation and speciation; # the evidence for the evolution of life # and apply the principles of classification; # the diversity of organisms and their relationship to each other and the environment; and

	# the basic concepts of population ecology, community structure and ecosystem.
Assessment:	A 45 minute, multiple choice test held mid-semester (10%); work related to practical classes during the semester (35%), made up of a combination of assessment of practical skills within the practical class, completion of up to 5 on-line pre-practical tests; written work within the practical not exceeding 500 words; up to 5 short multiple choice tests, and a written assignment based on the practical content not exceeding 1000 words; completion of 5 Independent Learning Tasks throughout the semester (5%); a 3hr examination on theory and practical work in the examination period (50%). A pass in the practical work is necessary to pass the subject (i.e. an 80% attendance at the practical workshops together with a result for the assessed practical work of at least 50%).
Prescribed Texts:	R B Knox, P Y Ladiges, B K Evans and R Saint, Biology, An Australian Focus 4th Ed, McGraw-Hill, 2010
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2013/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2013/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2013/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2013/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:	Students should develop generic skills in: # manipulating laboratory equipment, in particular using microscopes and gel electrophoresis; # the recording of observations and the analysis and interpretation of data; # the statistical analysis of genetic data; and # accessing information sources and discerning use of the world wide web.
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. Many second year subjects require the completion of this subject and BIOL10004 Biology of Cells and Organisms This subject involves the use of animals that form an essential part of the learning objectives for this subject. Please note: There are some non-dissection alternatives for those who have strong philosophical objections and these and other alternatives can be discussed with the subject co-ordinator. This is a joint botany, genetics and zoology subject. Required equipment: laboratory coat, microscope slides, coverslips & marker pen.
Related Course(s):	Bachelor of Biomedicine
Related Majors/Minors/ Specialisations:	Biology and Botany Production Animal Health Science credit subjects* for pre-2008 BSc, BASc and combined degree science courses Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED. Sustainable Production
Related Breadth Track(s):	Cell & Developmental Biology Genetics and Society Human Genetics Ecology Neuroscience

	Microbiology and immunology General Genetics Biotechnology