BIOL10002 Biomolecules and Cells

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	This subject is not offered in 2014.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 1 hour per week of tutorials or workshops, 2 hours of practical work per fortnight and 3 hours per week of e-learning including independent learning tasks, pre and post laboratory activities. Total Time Commitment: Estimated total time commitment of 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	

Subject	Study Period Commencement:	Credit Points:
BIOL10004 Biology of Cells and Organisms	Semester 1	12.50

Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. 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:	This subject aims to familiarise students with modern concepts of molecular and cell biology as a foundation for further studies in biomedicine. Topics include the chemical building blocks of life, cell evolution and endosymbiosis; cell organelles, their structure and function; movement across membranes, enzymes and cellular reactions, energy transformations and energy recycling, cell division: mitosis and meiosis; Multicellularity depends on homeostasis and the physiological systems that regulate this process. In addition this subject introduces students to stem cells and their therapeutic potential and embryonic development (how life begins).
Learning Outcomes:	At the completion of this subject, students should: # be aware of the basic processes of life; # be familiar with the structure and function of both prokaryotic and eukaryotic cells; # understand the two cellular processes for harvesting energy: respiration and photosynthesis; # understand biological processes from the level of biomolecules to whole organism biology; # understand that multicellularity in animals depends on homeostasis; # have a basic knowledge of animal structure and function and organ systems including digestive, endocrine, nervous, immune, circulation, respiration, excretion and reproduction; # have a basic knowledge of stem cells and their therapeutic potential; # have a basic understanding of animal diversity, # understand the relationships between tissues and organs in the whole animal via lectures and laboratory-based activities;

	# appreciate how and why organisms are studied by taking part in laboratory-based learning activities; # have developed skills in laboratory procedures such as correct use of microscopes; recording observations; hypothesis testing; data analysis, presentation and interpretation.
Assessment:	A 45 minute, multiple choice test held mid-semester (10%); 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 and up to 5 short multiple choice tests (25%) An assignment based on the practical content and not exceeding 1000 words (10%), Completion of 5 Independent Learning Tasks throughout the semester (5%) A 3 hour examination on theory and practical work in the examination period (50%). Satisfactory completion of practical work is necessary to pass the subject (i.e. an 80% attendance at the practical classes together with a result for the assessed practical work of at least 50%).
Prescribed Texts:	D Sadava, D M Hillis, H G Heller, M R Berenbaum, Life. 10th Ed. Sinaver/Freeman, 2013
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:	At the completion of this subject, students should: # be able to critically assess and assimilate new knowledge; # to use these skills to solve problems; # be able to complete basic manipulations with laboratory equipment, and dissection techniques. # develop skills in recording observations, analysis and interpretation of data, # be able to work in small groups
Notes:	This subject is only available to students enrolled in the Bachelor of Biomedicine. 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. Required Equipment - Laboratory coat.
Related Course(s):	Bachelor of Biomedicine