

BIOL10006 Systems Biology

Credit Points:	12.5
Level:	1 (Undergraduate)
Dates & Locations:	2015, Dookie This subject commences in the following study period/s: Semester 1, Dookie - Taught on campus.
Time Commitment:	Contact Hours: 36 hours lectures, 12 hours tutorials, 24 hours practicals, 12 hours computer-aided learning Total Time Commitment: 170 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p><p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability</p></p>
Coordinator:	Dr Andrew Hamilton
Contact:	andrewjh@unimelb.edu.au (mailto:andrewjh@unimelb.edu.au)
Subject Overview:	This subject provides students with an understanding of the living world, familiarising students with the fundamentals of cell structure and function, cell reproduction and genetics, systems involved in energy transformations, nutrition, water uptake, gas exchange, excretion, circulation and immune responses, structure and function of plants and animals, biodiversity, evolution and ecosystems.
Learning Outcomes:	<p>This subject introduces students to biological concepts and systems and includes:</p> <ul style="list-style-type: none"> # Cell biology and metabolism: molecules of life, water, organic compounds, ions polymers (proteins, nucleic acids, polysaccharides), organelles, membranes and walls; unicellular and multicellular organisms, cell division, mitosis; # Cell differentiation and specialisation; diversity and unity of cell structure, prokaryotes and eukaryotes; tissues and organs; major metabolic pathways, metabolism; enzymes; # Photosynthesis and photorespiration, glycolysis, fermentation; plant structure and function; roots, stems, leaves, meristems, flowers and seeds; plant cells and tissues, anatomical diversity; transpiration and translocation; # Mendelian genetics; inheritance; brief description of DNA, RNA, the double helix, recombination and mutation; protein synthesis and gene expression; # Animal structure and function; tissues, organs and organ systems; comparative anatomy; homoeostasis; # Nutrient uptake, circulation, gas and fluid exchange; differences between animal and plant anatomy; # Structure of selected invertebrate groups especially insects; # Mammalian structures; # Nutrient uptake; primary and secondary growth; reproduction and nutrition; heterotrophy and autotrophy; nutrients and nutrient cycling; productivity

	<ul style="list-style-type: none"> # Gametogenesis, process and structures in plants and animals; fertilisation, seed development, parturition, hatching; life cycles; and # Introduction to biodiversity and evolution; populations, communities and ecosystem adaptation, phylogeny.
Assessment:	1 hour mid-semester examination (due approximately week 6 - 20%) 1500 word assignment (due approximately week 12 - 40%) 1.5 hour final examination (end of semester - 40%)
Prescribed Texts:	None
Recommended Texts:	Knox et alia (2010). " <i>Biology: an Australian Focus</i> " (4th edition)
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:	<p>At the completion of this subject, students should:</p> <ul style="list-style-type: none"> # 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; # develop skills in recording observations, analysis and interpretation of data, and dissection techniques; # be able to work in small groups.
Related Course(s):	Diploma in General Studies