Microbiology, Infection & Immunology

Year and Campus:	2009
Coordinator:	Ms Sandra UrenDepartment of Microbiology and ImmunologyEmail: sandraju@unimelb.edu.au
Overview:	Life on earth began with microorganisms and depends on their numerous activities which are mostly beneficial but sometimes disastrous. The human immune system has evolved to control harmful microbes but can itself inflict damage on its host. This major will examine and integrate Microbiology, the study of microorganisms with Immunology. Skills developed include the ability to acquire, analyse and apply information from multiple sources, including the laboratory. The major opens up careers in diagnostics, forensic microbiology, vaccine development, molecular biology, biotechnology and regulation, as well as further research into a range of infectious diseases, the genetics and pathogenesis of the causative agent, the various outcomes of the immune system in a setting of infection, autoimmunity, and cancer. It provides a basis for further study into medicine and other paramedical disciplines.
Objectives:	On completion of this major, students should be able to: # describe the diverse range of microbes (bacteria, viruses, fungi and parasites), and the ways in which they interact with their hosts, the environment and each other # explain the molecular basis of the ability of various microorganisms to cause disease, together with strategies to interrupt this process, including the development of new antibiotics and other agents. # explain the fundamental concepts of bacterial cell division, cell growth and the transfer of molecules and signals across the cell membrane # describe the way the immune system responds to defend the body against agents of infection # describe the mechanisms operating in response to tumours, transplants, and in allergies and autoimmune diseases. # explain strategies to both restrict and boost the immune response by the development of novel vaccines and other interventions. # describe the principles and procedures involved in the identification and characterisation of bacteria and viruses # describe the use of molecular techniques to identify and characterise determinants associated with disease # describe the principles and procedures involved in isolating and characterising immune cells and their products # communicate scientific ideas and findings effectively in both oral and written form.
Subject Options:	Students completing Microbiology, Infection and Immunity will need to complete the following subjects: **Second Year** Microbes, Infections and Responses - *this subject includes 2hours laboratory based practical work per week* **Third Year** Principles of Immunology Molecular and Medical Microbiology Techniques in Microbiology and Immunology *Plus one subject from:* Medical and Applied Immunology Viruses and Other Parasites **NB** *Complete information on third year level subjects will be available in the 2010 Handbook which will be published late 2009.*

Subject	Study Period Commencement:	Credit Points:
526-205 Microbes: Infections and Responses	Semester 2	12.50

Links to further information:	http://www.bbiomed.unimelb.edu.au/bachelor_of_biomedicine/course_structure
Related Course(s):	Bachelor of Biomedicine