

# Microbiology and Immunology

<b>Year and Campus:</b>	2015			
<b>Coordinator:</b>	Dr Karena Waller			
<b>Contact:</b>	<a href="mailto:klwaller@unimelb.edu.au">klwaller@unimelb.edu.au</a> (mailto:klwaller@unimelb.edu.au)			
<b>Overview:</b>	<p>This major provides students with a detailed understanding of Microbiology and Immunology. It combines the study of infectious microbial agents, predominantly bacteria and viruses, with the study of the host's immune responses, which are most often beneficial but sometimes detrimental to the host. It describes how these disciplines are studied and their application to a range of areas in the biomedical sciences. The major opens up careers in infectious disease, diagnostics, molecular biology, biotechnology, vaccinology, antimicrobial chemotherapeutics, biosafety and regulation, as well as post-graduate research into infectious agents, their genes and mechanisms of disease together with the various beneficial and harmful aspects of the immune system. It provides a basis for further study into medicine and other paramedical disciplines.</p> <p>Students intending to undertake this major should be aware that it requires successful completion of a practical-based subject in which products and reagents derived from animals are used.</p>			
<b>Learning Outcomes:</b>	<p><i>Microbiology &amp; Immunology Major Graduates should demonstrate:</i></p> <ul style="list-style-type: none"> <li># ability to: describe the diverse range bacteria and viruses, and the ways in which they interact with their hosts, the environment and each other; explain the molecular basis of the ability of various microbial agents 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 in which the immune system responds to defend the body against agents of infection; explain the molecular and cellular responses elicited by vaccination;</li> <li># expertise in the describing the principles and procedures involved in the identification and characterisation of bacteria and viruses and in describing the use of molecular techniques to identify and characterise determinants associated with infectious disease;</li> <li># expertise in the selection and application of practical and/or theoretical techniques or tools in order to conduct an investigation;</li> <li># capacity for critical analysis and evaluation of scientific data from a range of sources to form evidence-based conclusions;</li> <li># skills to effectively communicate scientific ideas and findings effectively in both oral and written form;</li> <li># safe scientific work practices;</li> <li># expertise in accurately recording experimental data and the use of this record to construct and present oral and written scientific reports;</li> <li># skills for effective participation in group work activities, both within and outside of the laboratory;</li> <li># independence and self-directed learning ability and the ability to set their own goals and effectively manage their time and priorities.</li> <li># a high level of professional integrity; understand the requirements for personal and collective laboratory safety; understand the ethical requirements regarding plagiarism and accurate data reporting and analysis.</li> </ul>			
<b>Structure &amp; Available Subjects:</b>	<p>There are two specialisations within the Microbiology and Immunology major.</p> <p>Both specialisations contain the following two core subjects:  MIIM30011 Medical Microbiology: Bacteriology  MIIM30014 Medical Microbiology: Virology</p>			
<b>Majors/Minors/Specialisations</b>	<table border="1"> <thead> <tr> <th>Major/Minor/Specialisation</th> </tr> </thead> <tbody> <tr> <td>Microbiology</td> </tr> <tr> <td>Infection and Immunity</td> </tr> </tbody> </table>	Major/Minor/Specialisation	Microbiology	Infection and Immunity
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<b>Notes:</b>	This major is available to new generation Bachelor of Science students (BSc) and Bachelor of Biomedicine (BBiomed) students. It is also available to Bachelor of Science students who commenced prior to 2008. The published structure of this major includes subjects available in the current year. Pre-2008 Bachelor of Science students who completed one or more Level 3 science subjects towards this major prior to 2010 should contact the Science Student Centre for advice on appropriate subjects to complete this major.
<b>Related Course(s):</b>	Bachelor of Biomedicine Bachelor of Science