MIIM30016 Techniques in Microbiology

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. An enrolment quota of 160 students applies to this subject. For detailed information on the quota subject application process, refer to the Quota Subject link on the MDHS Student Centre website: http://sc.mdhs.unimelb.edu.au/quota-subjects
Time Commitment:	Contact Hours: 1 x 1-hr tutorial per week plus up to 3 hrs practical per week (i.e. up to 36 hrs practical per semester) plus 1 hr lecture per week during semester Total Time Commitment: 170 hours
Prerequisites:	This subject is only available to students enrolled in the Bachelor of Biomedicine and the Bachelor of Science.

B. Science students (pre 2013)

Subject	Study Period Commencement:	Credit Points:
MIIM20001 Principles of Microbiology & Immunology	Semester 1	12.50
MIIM20003 Experimental Microbiology	Not offered 2016	12.50
MIIM30011 Medical Microbiology: Bacteriology	Semester 1	12.50

B. Science students (2013 on)

Subject	Study Period Commencement:	Credit Points:
MIIM20001 Principles of Microbiology & Immunology	Semester 1	12.50
MIIM20002 Microbes, Infections and Responses	Semester 2	12.50
MIIM30011 Medical Microbiology: Bacteriology	Semester 1	12.50

B. Biomedicine students

Subject	Study Period Commencement:	Credit Points:
BIOM20001 Molecular and Cellular Biomedicine	Semester 1	25
MIIM20002 Microbes, Infections and Responses	Semester 2	12.50
MIIM30011 Medical Microbiology: Bacteriology	Semester 1	12.50

NOTE: MIIM30011 can also be taken concurrently for all students.

Corequisites:	None
Recommended Background Knowledge:	The prerequisite subjects should have provided a solid background in Microbiology. An understanding of the molecules, genes and biology of the cell would be useful.
Non Allowed Subjects:	This subject cannot be taken if students have gained credit for the following subjects: Subject **526-321 Molecular Microbiology Techniques (pre 2010)** **526-332 Techniques in Microbiology & Immunology (pre 2011)**

	MIIM30013 Techniques in Microbiology & Immunology (pre 2014)
Core Participation Requirements:	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. 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
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Subject Overview:	This subject provides an overview of: (i) methods used to identify and characterise infectious microbial agents; (ii) methods for studying the replication, gene function and evolution of pathogenic microbes and the interactions between infectious agents and their mammalian hosts; (iii) strategies used in constructing and presenting scientific reports, both oral and written. Laboratory techniques covered include molecular methods and functional assays used for the identification and characterisation of bacteria and viruses, such as regulation of gene expression, gene expression following DNA transfection, flow cytometry, enzyme immunoassays, protein electrophoresis, bioinformatics and viral neutralization assays. Non-Laboratory sessions will be used for the introduction of practical topics, data analysis, critical discussion of scientific research publications and discussion of strategies used in constructing and presenting scientific reports, both oral and written. Upon completion of the subject students will have: # used molecular methods and functional assays to identify important characteristics of microbes; # used common bioinformatics methods to analyse DNA and protein sequence data; # experience in the methodologies used to understand host-pathogen interactions; # developed skills in constructing and presenting scientific reports, both oral and written; # participated in group work activities, both within and outside the Laboratory; and # developed safe scientific work practices
Learning Outcomes:	Upon completion of this subject, students should be able to: # Describe and apply the principles and procedures involved in the identification and characterisation of infectious microbial agents # Describe and apply the use of molecular techniques to identify and characterise microbial determinants associated with disease # Describe the purpose of controls in the interpretation of experimental data # Keep clear and accurate laboratory records of all experimental work # Critically analyse and effectively communicate scientific ideas and findings in both oral and written form # Participate in group work activities within and outside the Laboratory

	# Demonstrate safe scientific work practices
Assessment:	1 x 2 hour end-of-semester exam (50%), 2 x 5 minute oral presentations (to be submitted mid-semester and end of semester, 12.5% each) 2 written reports (to be submitted mid-semester and end of semester, up to 1300 words each, 12.5% each) Satisfactory use and completion of a Laboratory Notebook is required to pass this subject (ie. it is a hurdle requirement). Attendance is compulsory. Students who miss more than 20% of the practical component of this subject will not be eligible for final assessment.
Prescribed Texts:	None
Recommended Texts:	Wilson, Salyers, Whitt, and Winkler, Bacterial Pathogenesis: a Molecular Approach, (3rd Edition), ASM Press USA. Principles of Virology, Flint SJ et al., 3rd Edition 2009 ASM Press USA (two volumes)
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:	On completion of this subject, students should have developed the following generic skills: # the ability to interpret scientific literature and interpret data from electronic databases. # the capacity to integrate knowledge across disciplines. # the ability to comprehend a question, evaluate the relevant information and communicate an answer.
Notes:	This subject is available to students enrolled in the: Pre-2008 B. Sc Pre-2008 B. Biomed. Sc. (Stream 7). NG B. Sc. NG B. Biomed This subject is a practical subject. It requires attendance in at least 80% of all scheduled practical sessions. Whilst students will not be involved in the manipulation and handling of animals, reagents and media components derived from animals will be used in some experiments. These experiments will be approved by the University of Melbourne Animal Welfare Committee. Experiments contained in this unit will also be approved by the Biosafety and Gene Technology Committee. Students wishing to register in this subject after the Quota Selection Date or after week 1 of a Semester should contact the subject coordinators.
Related Majors/Minors/ Specialisations:	Biomedical Biotechnology (specialisation of Biotechnology major) Immunology (pre-2008 Bachelor of Science) Infection and Immunity Microbiology Microbiology (pre-2008 Bachelor of Science) Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED