

Course Identity	
Course Code	MICR2011
Course Name	Microbiology 1
Academic Unit	School of Biotechnology and Biomolecular Sciences
Level of Course	Second year undergraduate
Session Offered	T1
Prerequisites	BABS1201
Hours per Week	7 hours per week
Number of Weeks	10
Commencement Date	Week 1, Term 1, 2020

Staff	
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Course Outline	
Course Description	This course is both for students majoring in microbiology and also those who wish to develop their knowledge and skills in microbiology. The course covers Introductory Microbiology including cell structure, function, physiology, and diversity. The course then focuses on specific areas of microbiology: Environmental Microbiology, Food Microbiology, Medical Microbiology, Microbes in Biotechnology, Virology, and Eukaryotic Microbiology.
Course Aims	Microbiology 1 aims to introduce you to microbes, their process, interactions and the techniques scientists use to study them.
Student Learning Outcomes	<p>By the completion of this course students should know:</p> <ul style="list-style-type: none"> <li>- the characteristics of Bacteria, Eukarya, Archaea and Viruses;</li> <li>- the fundamental processes carried out by microbes;</li> <li>- the types of interactions that occur between microbial populations;</li> <li>- how microbial growth can be controlled</li> <li>- standard microbiological laboratory techniques and safe, efficient work practices;</li> <li>- how to conduct effective literature and experimental research;</li> <li>- how to communicate clearly and work constructively as a team.</li> </ul>
Teaching Strategies	<p>Lectures are used to introduce the concepts of microbiology and laboratory sessions are used to both complement the lecture material and provide practice in standard microbiological techniques. Laboratories sessions encourage teamwork. Online tutorials are additionally designed to support concepts presented in lectures and practiced in the laboratory, and support students in their research projects.</p> <p>The laboratory research project forms an essential element of the students' scientific training. The research project, as integrated with the other components of the course, have been designed in accordance with the UNSW Guidelines on Learning that Inform Teaching (<a href="http://www.guidelinesonlearning.unsw.edu.au">www.guidelinesonlearning.unsw.edu.au</a>) to:</p> <ul style="list-style-type: none"> <li>- teach students the process of scientific inquiry through progressive cycles of critical analysis of their research and their own thinking;</li> <li>- facilitate multidisciplinary thinking to reflect current research and professional practice in the sciences;</li> <li>- reinforce deep learning and promote collaborative inquiry;</li> <li>- integrate students' disciplinary understanding and research practice with the development of their communication skills, teamwork, and information literacy skills.</li> </ul>
Major Topics (Syllabus Outline)	<ul style="list-style-type: none"> <li>o Microbial Cell Structure and Function</li> <li>o Evolution of Microbes and Microbial Diversity</li> <li>o Introduction to Archaea</li> <li>o Environmental Microbiology</li> <li>o Microbial Processes and Interactions</li> <li>o Medical Microbiology</li> <li>o Food Microbiology</li> <li>o Virology</li> <li>o Microbes in Biotechnology and Synthetic Biology</li> <li>o Eukaryotic Microbiology</li> </ul>

## Graduate Attributes Developed in this Course

Science Graduate Attributes	Degree of development <i>0 = no development</i> <i>1 = minimal</i> <i>2 = minor</i> <i>3 = major</i>	Activities / Assessment
Research, inquiry and analytical thinking abilities	3	Guided laboratory practicals, independent and collaborative lab research, assessment of open-ended investigations.
Capability and motivation for intellectual development	3	Semester project and associated report; concept quizzes to review procedural and applied thinking.
Ethical, social and professional understanding	2	Lectures address ethical and social issues relevant to the field of microbiology; lectures and discussions on current research in microbiology.
Communication	3	Writing and feedback on Semester Project Report Guidance in the development of scientific writing skills using tutorial materials.
Teamwork, collaborative and management skills	3	Collaborative lab research projects; facilitation of group discussions in Moodle; guided peer review of written research reports.
Information literacy	3	Guided research writing tutorial and critical literacy assessments; scientific literacy tutorial.

## Additional Resources and Support

Text Books	<p>Brocks Biology of Microorganisms. 15<sup>th</sup> edition Pearson</p> <p>NOTE: Earlier editions are satisfactory; however specific references to page numbers may vary.</p>
Laboratory Manual	<p>A course laboratory manual is required and may be purchased from the UNSW Bookshop. Students may also access a PDF of the Manual through the MICR2011 Moodle page.</p>
Internet Site	<p>Students enrolled in the course have access to the MICRO2011 Moodle website and are required to access this regularly. Announcements will be made through Moodle email system.</p> <p>Links to online tutorial material will be provided on Moodle.</p>
Equipment Required	<p>A lab coat, covered shoes, and safety glasses must be worn in all laboratory classes.</p>