FOOD20006 Food Microbiology and Safety

Credit Points:	12.5
Level:	2 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Three 1-hour lectures & one 2-hour laboratory practicals per week. Total Time Commitment: 170 hours.
Prerequisites:	BIOL10004 Biology of Cells and Organisms **OR** BIOL10002 Biomolecules and Cells
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	Students are expected to be familiar with word processing, data management and graphical software packages and to be competent in electronic search techniques. This subject requires attendance at lectures and active participation in practicals and tutorials. For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Dr Helen Billman-Jacobe
Contact:	Email: **hbj@unimelb.edu.au (mailto:hbj@unimelb.edu.au)**
Subject Overview:	Microbes (viruses, bacteria, fungi, parasites and other agents) can be associated with food in several ways: # As components of the fermentation processes that are associated with the development of flavours and textures of food and its preservation # As the normal microflora that is associated with the origins of the food and persist during storage, possibly contributing to food spoilage # As contaminants that enter food during processing or through subsequent mishandling, often posing public health risks However, as foods must be safe and fit for human consumption, this subject aims to familiarise students with major food spoilage and pathogenic microorganisms. The content will cover: # The kinetics of bacterial growth and the factors that may alter this (water activity, low pH, temperature, preservatives) # The principles of modelling growth # The principles of hazard and risk assessment in microbiological safety # The role of microbes in food processing, including examples of specific fermentation processes and waste treatment Practical exercises and case studies will be undertaken to provide an in-depth understanding of the regulatory framework of food safety
Learning Outcomes:	On completion of the subject students should be able to: # Describe concepts of normal flora and pathogenic microbes

	# Understand how microbes interact and impact on food # Understand the basics of identifying, classifying and enumerating microbes important in agri-food systems # Use bright field light microscopy as a tool for identifying microbes # Use aseptic techniques for the transfer and handling enumerating and identifying microorganisms in food samples
Assessment:	Practical reports, 1000 words in total, due in week 7 and week 12 worth 25% One 1000 word assignemt approximately due in Week 9 worth 25% A two-hour exam to be held in the end-of-semester exam period worth 50% The laboratory practicals are compulsory and commence in week 1.
Prescribed Texts:	Fundamental Food Microbiology by Bibek Ray and Arun Bhunia, 5th Edition, CRC Press.
Recommended Texts:	# Food Microbiology by Martin R Adams and Maurice O Moss, 3rd Edition.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2016/B-ARTS)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
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: # Enhanced skills in preparing reports based on practical experience # Ability to analyse and integrate information from published and publicly available literature # Teamwork capability for completion of case study tasks in a timely fashion
Notes:	This subject is available for science credit to students enrolled in the BSc (new degree only).
Related Majors/Minors/ Specialisations:	Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED