BIOS 2022 MICROBIOLOGY 1

Credit Points 10

Legacy Code 300833

Coordinator Michelle Moffitt (https://directory.westernsydney.edu.au/search/name/Michelle Moffitt/)

Description In this unit students will use an inquiry-based approach to explore the origin and diversity of microorganisms and their significance in the environment, in foods and industry as well as in health and disease. Students will be introduced to the structure, reproduction, classification, cultivation and enumeration of bacteria, viruses, fungi and protists. The conditions required for growth and survival of microorganisms will be studied as well as physical and chemical methods of control. In laboratory classes students will develop skills in culturing and observing microorganisms and in designing experiments to test microbiological concepts. This unit is a pre-requisite for Microbiology 2 and Level 3 Microbiology units.

School Science

Discipline Microbiology

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Equivalent Subjects BIOS 2023 - Microbiology 1

Incompatible Subjects BIOS 2015 - General Microbiology

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe and compare the major groups of microorganisms in terms of their structure, reproduction and techniques for cultivation in the laboratory.
2. Describe and discuss the factors that favour growth and survival of microorganisms
3. Explain the key roles of microorganisms in the environment, health and industry.
4. Use knowledge of microorganisms to ensure their appropriate control in public sanitisation, food and environmental industries and treatment of human infection with antibiotics
5. Conduct basic investigations in microbiology within Workplace Health and Safety guidelines and using techniques such as aseptic technique, microscopy, culturing and enumeration and interpret the data.
6. Design, perform, critically evaluate and report an experiment in microbiology using the scientific method.
7. Work effectively in a group to design and perform experiments.
8. Communicate microbiology concepts in oral and written form.

Subject Content

1. The history and scope of microbiology
2. Evolution, diversity and significance of microorganisms and their classification and identification
3. Structure, function and reproduction of prokaryotic and eukaryotic microorganisms and viruses
4. Microbial nutrition and growth
5. Methods used to control microbial growth
6. Principles of scientific method and experimental design to solve problems in microbiology
7. Techniques for observing, growing and enumerating microorganisms

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Short Answer	1 hour	15	N	Individual
Presentation	10 minutes	10	N	Individual
Report	600 words	25	N	Individual
Practical Exam	2 hours	20	N	Individual
Final Exam	2 hours	30	N	Individual

Prescribed Texts

- Willey, J.M., Sherwood, L.M. and Woolverton, C.J. (2019), *Prescott's Microbiology,* 11th edn, New York: McGrawHill.

Teaching Periods

Autumn

Campbelltown

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS2022_22-AUT_CA_D#subjects)

Hawkesbury

Composite

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS2022_22-AUT_HW_C#subjects)

Day

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Parramatta - Victoria Rd

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=BIOS2022_22-AUT_PS_D#subjects)