BIOS 2016 GENERAL MICROBIOLOGY

Credit Points 10

Legacy Code 300844

Coordinator Michael Phillips (https://directory.westernsydney.edu.au/search/name/Michael Phillips/)

Description Microorganisms play a crucial role in soil and water ecosystems, in health and disease of plants and animals, including humans, as well as in industries such as the food and brewing industries. The unit builds on students existing knowledge of cell biology and biodiversity, and explores the characteristics of micro-organisms, the conditions required for their growth and survival, methods of control and their significance in the environment, health and industry. The theory and practice of microbiology are integrated in the laboratory component in which students learn techniques of handling, observing, growing and counting microorganisms.

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

Pre-requisite(s) BIOS 1012 OR
BIOS 1001

Equivalent Subjects BIOS 2015 - General Microbiology

Incompatible Subjects LGYC 0093 - Microbiology 11 BIOS 2023 - Microbiology 1 BIOS 2022 - Microbiology 1

Assumed Knowledge

Knowledge of introductory biology, especially an understanding of the diversity of living organisms and basic concepts of cell structure and function is essential for students undertaking this subject.

Learning Outcomes

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

1. Compare the characteristics and habitats of the major groups of microorganisms.
2. Describe and discuss the factors that favour growth and survival of microorganisms and apply this knowledge to cultivation, control and elimination of microorganisms.
3. Explain the beneficial and detrimental roles of microorganisms in soil and aquatic environments, in human health and the food industry.
4. Discuss epidemiology and control of selected diseases in the Australian context.
5. Access and interpret relevant research literature and communicate microbiological concepts in written form.
6. Work within Workplace Health and Safety guidelines in a group to perform basic microbiological techniques to characterise and enumerate microorganisms.
7. Analyse and report microbiological data and interpret it in the context of Australian standards/guidelines.

Subject Content

1. The characteristics of the major groups of microorganisms and their relationship to other living organisms.
2. Requirements for microbial growth.
3. Physical and chemical methods of control of microorganisms.
4. Introduction to microbial ecology: interactions between microorganisms and other microbes, plants and animals.
5. Human-microbial interactions; normal microbiota and pathogens.
6. Epidemiology of communicable diseases.
7. Introduction to environmental microbiology: microbiology in the aquatic environment and in soils.
8. The significance of microorganisms in the food and wine industries.
9. Microbiological techniques: aseptic technique, culturing of bacteria, microscopic examination of microorganisms, enumeration of microorganisms in environmental samples and foods.

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
Laboratory Record and Report Booklet	N/A	20	N	Individual
On-line quizzes	3 x 1 hour	10	N	Individual
Written assignment	1,500 words	20	N	Individual
Final examination	2 hours closed book exam	50	Y	Individual

Prescribed Texts

- Tortora, G.J., Funke, B.R. and Case, C.L. 2011, Microbiology: An Introduction, 11th ed., San Francisco: Benjamin Cummings

Teaching Periods