Course Outlines

https://courseoutline.auckland.ac.nz/dco/course/BIOSCI/204/1243

BIOSCI 204 : Principles of Microbiology

Science

2024 Semester One (1243) (15 POINTS)

Course Prescription

An introduction to the diversity, physiology and functions of microorganisms (prokaryotes, eukaryotes, viruses) as individuals and as communities. The fundamental roles of microorganisms in ecosystems, health and disease are considered alongside methods for their isolation and study. Microbial applications in biotechnology, food production, agriculture and industry are also discussed.

Course Overview

This course provides an introduction to the diversity, physiology and functions of microorganisms (prokaryotes, eukaryotes, viruses) as individuals and as communities. The fundamental roles of microorganisms in ecosystems, health and disease are considered alongside methods for their isolation and study. Microbial applications in biotechnology, food production, agriculture and industry are also discussed.

BIOSCI 204 is a required paper in the Microbiology Pathway in the Biological Sciences Major. It leads into our BIOSCI stage 3 Microbiology papers BIOSCI 347 Environmental Microbiology, BIOSCI 348 Food and Industrial Microbiology and BIOSCI 349 Biomedical Microbiology.

Course Requirements

Prerequisite: BIOSCI 101 and 15 points from BIOSCI 106-109

Capabilities Developed in this Course

Capability 1: People and Place
Capability 2: Sustainability
Capability 3: Knowledge and Practice
Capability 4: Critical Thinking
Capability 5: Solution Seeking
Capability 6: Communication
Capability 7: Collaboration
Capability 8: Ethics and Professionalism

Graduate Profile: Bachelor of Science

Learning Outcomes

By the end of this course, students will be able to:

1. Gain accurate practical skills in isolation, identification, culture and handling of microorganisms. (Capability 3, 4 and 5)
2. Define the different structures within microbial cells and the roles of these structures. (Capability 3)
3. Describe the diversity of microbial metabolism. (Capability 3)
4. Describe the origins and evolution of microbial life and the roles microorganisms play within ecosystems, using examples. (Capability 3 and 4)
5. Recognise the interactions between macro-organisms and micro-organisms. (Capability 3 and 4)
6. Assess critically, the literature around a current microbiology topic. Communicate this information a clear, concise manner in an essay using references to support the argument. Link the microbiology topic to social and environmental responsibilities. (Capability 1, 2, 4, 6, 7 and 8)
7. Be able to incorporate knowledge and understanding from practical and theoretical course components into discussions of microbiological concepts and their relationships to society and the environment. (Capability 1, 2, 4, 5 and 8)

Assessments

Assessment Type	Percentage	Classification
Laboratories	20%	Individual Coursework
Essay	20%	Individual Coursework
Test	30%	Individual Coursework
Final Exam	30%	Individual Coursework
4 types	100%	

Assessment Type	Learning Outcome Addressed						
	1	2	3	4	5	6	7
Laboratories	✔						✔
Essay						✔	✔
Test		✔	✔	✔			
Final Exam					✔		✔

Students must pass the practicals (laboratories) and the theory (essay, test and exam) independently to pass the course overall.

Tuākana

Tuākana Science is a multi-faceted programme for Māori and Pacific students providing topic specific tutorials, one-on-one sessions, test and exam preparation and more. Explore your options at
https://www.auckland.ac.nz/en/science/study-with-us/pacific-in-our-faculty.html
https://www.auckland.ac.nz/en/science/study-with-us/maori-in-our-faculty.html

Key Topics

1. The fundamentals of microbiology
2. Prokaryotic life
3. Micro-eukaryotic life and viruses
4. Microbial growth and metabolism
5. Evolution and genetics of microorganisms
6. Microbial processes and ecology
7. Microbial applications

Special Requirements

Students are required to supply and wear a lab coat and safety glasses while in the teaching lab.
Attendance is required at the evening test (after 6pm); the date and time for the test is published on the BIOSCI 204 Canvas course.

Workload Expectations

This course is a standard 15 point course and students are expected to spend 10 hours per week involved in each 15 point course that they are enrolled in.

For this course, you can expect 3 hours of lectures per week, a fortnightly 3 hour practical lab, 66 hours of reading and thinking about the content and work on assignments and/or test preparation (minimum 5.5 hours per week outside of class).

If you do not attend class and use lecture recordings you need to do minimum 8.5 hours per week at home.

Delivery Mode

Campus Experience

Attendance is required at scheduled activities including labs to complete components of the course.
Lectures are taught on campus and will be available online as recordings. Laboratory and tutorial content may not be recorded.
The activities for the course are scheduled as a standard weekly timetable.

Learning Resources

Course materials are made available in a learning and collaboration tool called Canvas which also includes reading lists and lecture recordings (where available).

Please remember that the recording of any class on a personal device requires the permission of the instructor.

Canvas
Textbook: Prescott's Microbiology
University of Auckland Library and Learning Services - for journal articles and database access

Student Feedback

During the course Class Representatives in each class can take feedback to the staff responsible for the course and staff-student consultative committees.

At the end of the course students will be invited to give feedback on the course and teaching through a tool called SET or Qualtrics. The lecturers and course co-ordinators will consider all feedback.

Your feedback helps to improve the course and its delivery for all students.

While our BioSci204 laboratories have largely been very well received, to ensure we are teaching only the most up-to-date material, all six labs were replaced 2021! We've worked hard to ensure that, where possible, the person running the labs is the same person providing you with lectures during that week, improving your ability to interact with your lecturers and ask questions. To improve the sustainability of our course, we regret that we may no longer provide a full hard copy of the course guide in 2023.

Academic Integrity

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's own work, reflecting their learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the internet. A student's assessed work may be reviewed for potential plagiarism or other forms of academic misconduct, using computerised detection mechanisms.

Class Representatives

Class representatives are students tasked with representing student issues to departments, faculties, and the wider university. If you have a complaint about this course, please contact your class rep who will know how to raise it in the right channels. See your departmental noticeboard for contact details for your class reps.

Copyright

Inclusive Learning

All students are asked to discuss any impairment related requirements privately, face to face and/or in written form with the course coordinator, lecturer or tutor.

Student Disability Services also provides support for students with a wide range of impairments, both visible and invisible, to succeed and excel at the University. For more information and contact details, please visit the Student Disability Services' website http://disability.auckland.ac.nz

Special Circumstances

If your ability to complete assessed coursework is affected by illness or other personal circumstances outside of your control, contact a member of teaching staff as soon as possible before the assessment is due.

If your personal circumstances significantly affect your performance, or preparation, for an exam or eligible written test, refer to the University's aegrotat or compassionate consideration page https://www.auckland.ac.nz/en/students/academic-information/exams-and-final-results/during-exams/aegrotat-and-compassionate-consideration.html.

This should be done as soon as possible and no later than seven days after the affected test or exam date.

Learning Continuity

In the event of an unexpected disruption, we undertake to maintain the continuity and standard of teaching and learning in all your courses throughout the year. If there are unexpected disruptions the University has contingency plans to ensure that access to your course continues and course assessment continues to meet the principles of the University's assessment policy. Some adjustments may need to be made in emergencies. You will be kept fully informed by your course co-ordinator/director, and if disruption occurs you should refer to the university website for information about how to proceed.

The delivery mode may change depending on COVID restrictions. Any changes will be communicated through Canvas.

Student Charter and Responsibilities

The Student Charter assumes and acknowledges that students are active participants in the learning process and that they have responsibilities to the institution and the international community of scholars. The University expects that students will act at all times in a way that demonstrates respect for the rights of other students and staff so that the learning environment is both safe and productive. For further information visit Student Charter https://www.auckland.ac.nz/en/students/forms-policies-and-guidelines/student-policies-and-guidelines/student-charter.html.

Disclaimer

Elements of this outline may be subject to change. The latest information about the course will be available for enrolled students in Canvas.

In this course students may be asked to submit coursework assessments digitally. The University reserves the right to conduct scheduled tests and examinations for this course online or through the use of computers or other electronic devices. Where tests or examinations are conducted online remote invigilation arrangements may be used. In exceptional circumstances changes to elements of this course may be necessary at short notice. Students enrolled in this course will be informed of any such changes and the reasons for them, as soon as possible, through Canvas.