

# LFS261 Microbiology

School: School of Science, Technology and Engineering

2024 | Semester 1

UniSC Sunshine Coast  
UniSC Moreton Bay

**BLENDED  
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

*Please go to [usc.edu.au](http://usc.edu.au) for up to date information on the teaching sessions and campuses where this course is usually offered.*

## 1. What is this course about?

### 1.1. Description

This course introduces you to the world of microbiology, the basis of higher life forms. You learn the fundamental theory and laboratory skills needed to understand microbial isolation, growth, diversity, reproduction, physiology, metabolism and identification. You also study the distribution of microorganisms in nature, their relationship to each other and to other living things as well as their beneficial and detrimental effects. Gain of ethics and laboratory skills is an essential component of the course as well as understanding the theory behind each experiment.

### 1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
<b>BLENDED LEARNING</b>			
<b>Learning materials</b> – Asynchronous learning materials	1hr	Week 1	13 times
<b>Tutorial/Workshop 1</b> – Online Tutorial/Workshop	2hrs	Week 1	13 times
<b>Laboratory 1</b> – On-campus Laboratory every fortnight	3hrs	Week 2	6 times

### 1.3. Course Topics

The Big Picture; Microbiology and its place in science and the world

Evolution of Earth and microorganisms

Detecting and isolating microorganisms

Microbial diversity, physiology, genetics and metabolism

Microbiological terminology and microbial systematics

Microbial interactions with higher organisms

Beneficial and detrimental effects of microorganisms

Laboratory skills, ethics, communication and professionalism

## 2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Demonstrate and apply theoretical and foundational knowledge of microbiology and microorganisms   their occurrence, distribution, growth, life cycles, diversity, genetics, relationships and effects on humans, plants and animals	Knowledgeable Empowered
2 Demonstrate knowledge and interpret and analyse data and other information related to identification of micro-organisms, their nutrition requirements and issues related to growth and control of microbial growth	Empowered Ethical
3 Apply ethical codes of conduct to work safely while gaining laboratory skills and collecting data	Knowledgeable Ethical
4 Communicate scientific findings in a laboratory report	Empowered

## 5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

### 5.1. Pre-requisites

SCI103 or LFS100 or LFS103

### 5.2. Co-requisites

Not applicable

### 5.3. Anti-requisites

MEP263 or MBT263

### 5.4. Specific assumed prior knowledge and skills (where applicable)

Introductory laboratory skills and scientific report writing

## 6. How am I going to be assessed?

### 6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

### 6.2. Details of early feedback on progress

The exam will take place in week 4 covering the first 3 weeks of learning material of the course, this early assessment item will prepare students to the mid-term exam. In addition, in the early stages of the semester students will be provided additional information on the laboratory report writing

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	5%	1 hour	Week 4	Online Test (Quiz)
All	2	Examination - not Centrally Scheduled	Individual	25%	2 hours	Week 7	Online Test (Quiz)
All	3	Practical / Laboratory Skills	Individual	45%	a] 30 min online multiple-choice quizzes (20%) b] Laboratory report up to 3000 words (25%)	Throughout teaching period (refer to Format)	Online Submission
All	4	Examination - Centrally Scheduled	Individual	25%	2 hours	Exam Period	Online Test (Quiz)

**All - Assessment Task 1:** Early Assessment Quiz

<b>GOAL:</b>	This task is designed to give you early feedback on foundational theoretical knowledge and to give you an early progress indication for the course. This quiz will help you in preparing for the mid-term exam and it will cover the first 3 weeks of learning materials of the course.							
<b>PRODUCT:</b>	Quiz/zes							
<b>FORMAT:</b>	Multiple choice questions covering the contents of the learning material from the weeks 1-3							
<b>CRITERIA:</b>	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>You will demonstrate your understanding of the theoretical knowledge you gained related to the evolution, isolation and growing of microorganisms</td> <td>1</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	You will demonstrate your understanding of the theoretical knowledge you gained related to the evolution, isolation and growing of microorganisms	1	
No.		Learning Outcome assessed						
1	You will demonstrate your understanding of the theoretical knowledge you gained related to the evolution, isolation and growing of microorganisms	1						
<b>GENERIC SKILLS:</b>	Communication, Information literacy							

**All - Assessment Task 2:** Mid-term Exam

<b>GOAL:</b>	You will demonstrate your understanding of the theoretical knowledge you gained related to the microorganisms, their ecology, isolation, growth, relationships and effects on other living things.										
<b>PRODUCT:</b>	Examination - not Centrally Scheduled										
<b>FORMAT:</b>	Multiple choice questions covering the contents of the learning material from the weeks 1-6										
<b>CRITERIA:</b>	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Knowledge of microorganisms, their ecology, isolation, growth, relationships and effects on humans</td> <td>1 2</td> </tr> <tr> <td>2</td> <td>Information related to identify microorganisms, their nutrition requirements and issues related to control of growth</td> <td>1 2</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	Knowledge of microorganisms, their ecology, isolation, growth, relationships and effects on humans	1 2	2	Information related to identify microorganisms, their nutrition requirements and issues related to control of growth	1 2	
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1	Knowledge of microorganisms, their ecology, isolation, growth, relationships and effects on humans	1 2									
2	Information related to identify microorganisms, their nutrition requirements and issues related to control of growth	1 2									
<b>GENERIC SKILLS:</b>	Communication, Information literacy										

### All - Assessment Task 3: Laboratory Portfolio

<b>GOAL:</b>	This assessment has been designed for you to specifically develop your competencies in the laboratory – which is an essential skill for Biomedical and Science students and related majors and minors that include microbiology and biotechnology as well as for students who will use laboratory components in their careers like school teachers.	
<b>PRODUCT:</b>	Practical / Laboratory Skills	
<b>FORMAT:</b>	Laboratory responses: a) Online laboratory quizzes: 30 min MCQ quizzes taking part after completion of each practical: week 4,6,8,10,12. Only students who actively participated in the laboratory activity can take these quizzes. b) Laboratory report: up to 3000-word report; individual hard copy written report on practical number 3 (week 6), Part A (TESTING ANTIBACTERIAL MEDICINES) that adheres to the given report structure (rubric) to be provided by the Course-Coordinator.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	demonstrate and apply theoretical and practical knowledge gained in the practicals 2 3 4
	2	interpret and analyse data and other information gained in the practicals (e.g. microbial nutrition requirements, growth rates, microbial counts, antibiotic susceptibility measurements) 3 4
	3	apply ethical codes of conduct to work safely while gaining laboratory skills and collecting data 3
	4	communicate in writing in the form of a laboratory report that adheres to scientific standards and formats as well as complying with the rubric to be provided by the course coordinator 4
<b>GENERIC SKILLS:</b>	Communication, Collaboration, Problem solving, Organisation, Information literacy	

### All - Assessment Task 4: Final Exam

<b>GOAL:</b>	Demonstrate and apply theoretical and foundational knowledge of microbiology and microorganisms taxonomy, diversity, metabolism, genetics, relationships and effects on humans, plants and animals	
<b>PRODUCT:</b>	Examination - Centrally Scheduled	
<b>FORMAT:</b>	2 hour final exam covering the contents of the learning material from the weeks 7-13	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	demonstrate and apply theoretical knowledge of microorganisms (taxonomy, genetics) and relationships (to plants & animals) including 1
	2	taxonomical groups of microorganisms 1
	3	identification methods 1
	4	nutritional requirements and microbial metabolism 1
	5	bacterial genetics 1
	6	microbial interactions with higher organisms 1
	7	beneficial and detrimental effects on plants & animals 1
<b>GENERIC SKILLS:</b>	Communication, Applying technologies, Information literacy	

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Gerard J. Tortora, Berdell, R. Funke, Christine L. Case	0	MICROBIOLOGY	Latest Global Edition	Pearson Education Ltd.
Required	John Lammert	0	Techniques for Microbiology: A Student Handbook	Latest edition	Pearson Education Ltd.
Recommended	Michael T. Madigan,Kelly S. Bender,Daniel H. Buckley,W. Matthew Sattley,David A. Stahl	2018	Brock Biology of Microorganisms	Latest Global Edition	Pearson Higher Education
Recommended	James G. Cappuccino, Chad T. Welsh	0	Microbiology	Latest Edition	Pearson Education Ltd.

### 8.2. Specific requirements

Protective clothing for laboratory and strict adherence to the laboratory safety guidelines. Students fail to adhere the code or do not present a hard copy of their online laboratory safety quiz results in the first laboratory practical will not be admitted to the laboratory.

## 9. How are risks managed in this course?

Risk assessments have been performed for all studio and laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

## 10. What administrative information is relevant to this course?

### 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

### 10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

### 10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate (the rates are cumulative):

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day
- 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.

To request an extension you must contact your course coordinator to negotiate an outcome.

### 10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email [safe@usc.edu.au](mailto:safe@usc.edu.au).

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au).

### 10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au).

### 10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au) or call 07 5430 1226.

### 10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email [AccessAbility@usc.edu.au](mailto:AccessAbility@usc.edu.au) or call 07 5430 2890.

### 10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

### 10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

## 10.10.General Enquiries

### In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890

**Email:** [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)