COURSE OUTLINE

LFS100 Cell Biology

School: School of Health - Biomedicine

2026 | Trimester 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 unisc.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

Cell Biology explores the cellular foundation of life. You will explore the connection between the structure and function of cells (eukaryotic and prokaryotic), aspects of cellular evolution and the organisation and development of cells into primary tissues. The course offers you the opportunity to develop and demonstrate the skills important for scientific experimentation and investigation in the fields of science and biomedical science, including practical laboratory skills and science communication. It provides a strong foundation for further studies in physiology, molecular biology, and genetics relevant to biomedicine.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Online learning materials in a recorded format with interactive (H5P) modules and formative (revision) quizzes.	2hrs	Week 1	12 times
Tutorial/Workshop 2 – The weekly online sessions (also known as 'lectorials') allow you to engage with course academics. You will be guided through revision activities, the development of core skills for application in workshops and laboratory classes and also work through problems relating to theories learnt across the course. There is also 'open' time provided in these sessions for questions regarding all aspects of the course (including questions on course theory, skills and assessment).	2hrs	Week 1	12 times
Tutorial/Workshop 1 – Interactive small class workshops with skill development and collaborative learning.	2hrs	Week 1	6 times
Laboratory 1 – Science laboratory (wet labs) for collaborative learning and practical skill development.	3hrs	Week 2	6 times

1.3. Course Topics

- Comparative structure and function of eukaryotic and prokaryotic cells
- Cell membrane structure and function
- Introductory cell metabolism
- Cell communication
- The cell cycle and cell division
- Genetics and patterns of inheritance
- Introductory molecular cell biology
- Human cell and tissue structure and function
- Introductory developmental biology

2. What level is this course?

100 Level (Introductory)

Engaging with discipline knowledge and skills at foundational level, broad application of knowledge and skills in familiar contexts and with support. Limited or no prerequisites. Normally, associated with the first full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES MAPPING Completing these tasks successfully will contribute to you becoming...	PROFESSIONAL STANDARD MAPPING * Australian Institute of Medical and Clinical Scientists
1 Describe the basic structure and function of cells in living organisms.	Knowledgeable	1.1.2, 1.3.1, 1.6.3, 1.6.8, 2.1.1, 3.1
2 Apply knowledge of cell structures and functions to solve problems.	Knowledgeable Creative and critical thinker	3.3, 6.2.4, 10.3.2
3 Research, critically evaluate, and ethically present appropriate and relevant literature about cells in a creative and informative way.	Knowledgeable Creative and critical thinker Ethical	2.1.1, 2.1.2, 2.2.1, 7.3.2, 7.4.1, 10.1.5, 10.4.2
4 Demonstrate the procedures for observing and recording biological specimens using compound light microscopy.	Knowledgeable Empowered	1.1.2, 1.1.4, 1.3.1, 1.3.2, 1.6.6, 1.6.7, 2.1.1, 2.1.2, 6.2.4
5 Present results of an experiment in a standard scientific format.	Knowledgeable Creative and critical thinker	10.3.1, 10.3.2, 10.3.3, 10.4

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE OF MEDICAL AND CLINICAL SCIENTISTS	
1.1.2	Ensure the appropriateness of sample collection procedures: Identification of patient and demographic information is established.
1.3.1	Evaluate specimen suitability prior to analysis: Correct and satisfactory labelling and matching of subject details is established.
1.6.3	Read and validate results - Equipment based testing: Results are calculated from data outputs according to documented procedures.
1.6.8	Read and validate results - Observation based testing: Observations and evaluations are summarised, using the appropriate knowledge base, and summary is recorded according to regulatory protocols.
1.1.4	Ensure the appropriateness of sample collection procedures: Patient preparation and specimen collection is consistent with test(s) requested.

CODE	COMPETENCY
1.3.2	Evaluate specimen suitability prior to analysis: Confirmation is made that the nature of the specimen is consistent with requested analysis.
1.6.6	Read and validate results - Observation based testing: Available clinical information is reviewed.
1.6.7	Read and validate results - Observation based testing: Critical observations are made and recorded.
2.1.1	Assess validity of data/results against possible range of outcomes: Initial observation and limited interpretation for significance of the raw data/results is undertaken.
2.1.2	Assess validity of data/results against possible range of outcomes: Implausible results, results inconsistent with clinical information or expected outcomes based on other test results or those outside defined criteria are investigated further using defined troubleshooting strategies.
2.2.1	Validation of results: Possible causes for implausible or inconsistent results or outcomes are determined.
3.1	Interpretation, reporting and issuing of laboratory results: Verify report(s) with sample identification
3.3	Interpretation, reporting and issuing of laboratory results: Ensure that results with important diagnostic or treatment implications are communicated as per established protocols
6.2.4	Maintain and update scientific/technical knowledge and skills: Opportunities to enhance learning from investigation of unusual clinical cases and/or results are pursued.
7.3.2	Demonstrates knowledge of contemporary ethical issues impinging on Medical Science: Rights of individuals/groups are recognised and protected.
7.4.1	Knowledge of new tests and their potential in the laboratory: Ongoing review of current literature for information on new or improved tests or procedures is performed.
10.3.2	Evaluate results and the need for further experimental work: Contributions are made to the interpretation of results and conclusions.
10.1.5	Contribute to planning and design of research and development projects: Relevant information is accessed online, from libraries and other sources.
10.4.2	Prepare and deliver report: Preparation of verbal and/or written reports or article (including for publication) is undertaken.
10.3.1	Evaluate results and the need for further experimental work: Data is collected and prepared for analysis.
10.3.3	Evaluate results and the need for further experimental work: Requirements are determined for further experimental work in consultation with collaborators.
10.4	Contribute to planning and design of research and development projects: Prepare and deliver report

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

Not applicable

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

LFS101 or LFS103

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

Not applicable

5.5. Microcredential Information

Not applicable

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

This course will provide you with early feedback on your learning of cell biology topics and scientific skills. This feedback will be provided in the form of formative online quizzes and subsequent in class feedback on summative tasks from Week 2 onwards. In addition, there are weekly formative online quizzes (H5P) administered through online learning materials throughout trimester. You can use the feedback provided to identify if you require additional support for your learning of cell biology.

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	Portfolio	Individual and Group	25%	Multiple elements, approximately 2-3 hours weekly.	Throughout teaching period (refer to Format)	In Class
All	2	Artefact - Creative, and Written Piece	Individual	25%	Multiple elements equivalent to approx. 1000 words total.	Refer to Format	Online Assignment Submission with plagiarism check
All	3	Examination - not Centrally Scheduled	Individual	50%	This assessment has two components: Task 3A: Mid-Trimester exam (80 minutes) Task 3B: End of trimester exam (100 minutes)	Refer to Format	Exam Venue

All - Assessment Task 1: Theoretical and Practical Portfolio

GOAL:	For you to regularly engage in the theoretical and practical components of the course to facilitate your learning and skill development.
PRODUCT:	Portfolio
FORMAT:	This portfolio will include: Task 1A: Workshop preparation and participation (6%; Weeks 1,3,5,7,9,11); Task 1B: Laboratory class preparation and participation (4%; Weeks 2,4,8,10); Task 1C: In class (lab) graphing assessment (5%; Week 4); Task 1D: In class (lab) cell drawing assessment (5%; Week 8); Task 1E: In class (lab) zone diagram assessment (5%; Week 10). Please refer to the LFS100 assessment folder in Canvas for specific details for task description, format, marking rubrics and submission instructions.

CRITERIA:

No.		Learning Outcome assessed
1	Participation in workshop and laboratory classes to learn about cells, and develop skills of microscopy and scientific method	1 2 4 5
2	Description of structures and functions of cells	1
3	Application of cell biology knowledge to solve problems	2
4	Demonstration and understanding of light microscopy skills	4
5	Presentation of data in a standard scientific format	5

GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Applying technologies, Information literacy

All - Assessment Task 2: Cell Specific Investigation (CSi) Assignment

GOAL:	This task is designed to help you explore the world of cells and how they are important for life. You will gain skills in searching for relevant academic literature, communicating in scientific language and creating figures to aid in scientific communication. You will revise and employ various concepts in cell biology and how they are important for cell structure and function.
PRODUCT:	Artefact - Creative, and Written Piece
FORMAT:	This assignment consists of three parts: Task 2A: CSi Checkpoint (3%, Week 4) Task 2B: CSi Turnitin self-audit (2%, Monday of Week 10) Task 2C: CSi Final submission (20%, Friday of Week 10) Please refer to the LFS100 assessment folder in Canvas for specific details for task description, format, marking rubrics and submission instructions.

CRITERIA:

No.		Learning Outcome assessed
1	Critical evaluation and synthesis of scientific literature to describe a chosen cell's structure and related function.	1 2 3
2	Integration of cell biology concepts discussed in the course theory modules specific to your chosen cell.	1 2
3	Communication of the cell's structure and function using visual means.	1 2 3
4	Use of appropriate scientific and academic language.	1 3
5	Adherence to instructions on presentation and formatting, including referencing	3
6	Compliance with academic integrity when using and citing literature	3

GENERIC SKILLS:	Communication, Problem solving, Applying technologies, Information literacy

All - Assessment Task 3: Theory and Practical Examinations

GOAL:	To assess your practical skills, understanding of and ability to apply knowledge of the theory of cell biology presented in the course.
PRODUCT:	Examination - not Centrally Scheduled
FORMAT:	This assessment has two components: Task 3A: Mid trimester exam (20%, limited open book, held in class (Week 6). Task 3B: End of trimester exam (30%, limited open book, held in class (Week 12). The mid trimester exam (Task 3A) will allow you to demonstrate your knowledge, practical skills and understanding of topics including prokaryotic and eukaryotic cells, the cell membrane, the introduction to cell metabolism, cell communication and the cell cycle. The end of trimester exam (Task 3B) will allow you to demonstrate your knowledge, practical skills and understanding of topics including genetics and the basis of inheritance, molecular cell biology (DNA, RNA and protein), cells to tissues and the introduction to developmental cell biology. Both examinations will consist of various question types including multiple choice, fill in the blank and short answer style questions across both theory and practical elements of the course content. Further details will be provided on Canvas.
CRITERIA:	

No.		Learning Outcome assessed
1	Description of structure and function of cells	1
2	Demonstration of the connection between structure and function of cells	1 2
3	Demonstration of structure and function of tissues in animals and plants	1 2
4	Application of knowledge of cell biology theory to solve problems	2

GENERIC SKILLS:	Communication, Problem solving

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

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	n/a	0	Please note: choose one of the options below. If you are studying more biology courses you may want to choose the full text rather than the custom edition which only contains the reading for LFS100.	n/a	n/a
Required	Urry LA, Meyers N, Cain ML, Wasserman SA, Minorsky PV, Orr RB, Burke da Silva K, Parkinson A, Lluka L and Chunduri P	2021	Campbell Biology	(12th Ed)	Pearson
Required	Urry LA, Meyers N, Cain ML, Wasserman SA, Minorsky PV, Orr RB, Burke da Silva K, Parkinson A, Lluka L and Chunduri P.	2022	Cell Biology LFS 100 (Custom Edition)	(4th Ed)	n/a

8.2. Specific requirements

You must wear a lab coat, enclosed shoes, and safety glasses during laboratory classes. You must bring your own copy of the LFS100 Cell Biology Workbook: Workshop and Laboratory Manual to both laboratory and workshop classes. A bound copy of the workbook will be available for purchase from the UniSC MyPrint Shop, or alternatively, you may download a PDF copy from the Canvas course site, print the manual and bind it yourself.
To successfully complete the UB001 Bachelor of Medical Laboratory Science (Pathology) and meet accreditation requirements of AIMS, UB001 students enrolled in LFS100 are expected to attend and participate in laboratory practical classes, and attendance will be recorded.

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a moderate level of health and safety risk exists. Moderate risks are those associated with laboratory work such as working with chemicals and hazardous substances. You will be required to undertake laboratory induction training and it is also your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety 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:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. 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

10.5. 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.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central