



COURSE OUTLINE

LFS103 Introductory Bioscience

Course Coordinator: Nicole Masters (nmasters@usc.edu.au) **School:** School of Health and Behavioural Sciences

2021 | Semester 2

USC Sunshine Coast
USC Moreton Bay

ON CAMPUS

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

Please go to the USC website 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

Introductory Bioscience is designed to provide you, in the health field, with the scientific principles that form the basis of human physiology and anatomy. Science and technology often surround the modern health practitioner. Moreover, major advances in medicine, allied health and human functioning have come about from a greater understanding of the basic sciences. This course will introduce you to foundational concepts and principles in chemistry, biology, and microbiology that are relevant to health-care practice.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Laboratory 1 – Weekly practical sessions that apply the theoretical knowledge to experimental activities and data.	2hrs	Week 1	13 times
Online – Weekly theory eModules. Weekly Case Study - review case study and complete associated questions.	4hrs	Week 1	12 times
Independent Study/Research – Complete own independent study and relevant assessment tasks as they become available.	5hrs	Week 1	13 times
Lecture – 1 hour weekly lectorial to review the theoretical concepts presented in the theory eModule	1hr	Week 1	13 times

1.3. Course Topics

- Foundational cell chemistry
- The building blocks of life
- Transcription and translation
- Introduction to cellular metabolism and ATP
- Comparative human cell structure and function
- The cell cycle and replication of human cells
- Human tissue structure and function
- Characteristics of fluids in the human body
- Gas laws and respiration
- Acids and bases, and chemistry of blood buffer system
- Human genetics and patterns of inheritance
- Microbiology and infection control

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	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Demonstrate, explain and apply the foundational principles of cell chemistry and cell biology to human function and health.	Knowledgeable Empowered
2 Develop practical laboratory skills and competencies to understand experimental outcomes in cell chemistry, cell biology and microbiology.	Knowledgeable Creative and critical thinker Empowered
3 Demonstrate sound scientific reasoning skills in the context of of the broader healthcare setting.	Knowledgeable Creative and critical thinker Empowered
4 Develop strategies for self-learning and critical reasoning, and engage in self-reflection.	Creative and critical thinker Empowered Engaged

5. Am I eligible to enrol in this course?

Refer to the [USC 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

LFS100

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

It is recommended that students have some prerequisite knowledge in core mathematics, and basic biology and chemistry. An optional Maths Diagnostic will be available before the teaching semester commences on the LFS103 Blackboard site if you would like to test your core maths skills and determine whether you require maths support.

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 includes weekly formative concept checks which provide an opportunity for you to receive formative feedback on your academic progress.

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	40%	Approximately 2 - 4 hours per week	Throughout teaching period (refer to Format)	Online Test (Quiz)
All	2	Examination	Individual	20%	1 hour	Week 8	Online Test (Quiz)
All	3	Examination - Centrally Scheduled	Individual	40%	130 minute	Exam Period	Online Test (Quiz)

All - Assessment Task 1: Practical and Theory Work Portfolio

GOAL:	To provide you with an opportunity to demonstrate your knowledge of the theory and practical components of this course. The portfolio is a suite of activities that allow you to develop your foundational knowledge for future work in Bioscience. This work includes self-assessment of your learning which is a critical skill in improving your educational performance.	
PRODUCT:	Portfolio	
FORMAT:	<p>The following activities will make up the portfolio:</p> <ol style="list-style-type: none"> 1) Scientific measurements quiz - 5%; week 3 2) Practical exercise on graphing - online formative eModule; open all semester 3) Chemistry calculations quiz - 5%; week 12 4) Case Study test - 20%; week 13 5) Successful completion of the weekly eModules (10 of 12 topics) - 10%; week 1 - 12 	
CRITERIA:	No.	Learning Outcome assessed
	1 Accuracy in calculations	1 2
	2 Create and interpret appropriate visual representations of experimental data	1 2 3
	3 Completion of pre-class eModules and active participation in class activities	1 2 3 4
	4 Apply theoretical concepts to professional case studies.	1 2 4

All - Assessment Task 2: Mid-semester exam

GOAL:	To provide you with an opportunity to demonstrate, explain and apply the foundational principles of cell chemistry and cell biology as they apply to human functioning and health practice.	
PRODUCT:	Examination	
FORMAT:	One hour online test - please refer to course blackboard site for more details	
CRITERIA:	No.	Learning Outcome assessed
	1 Demonstrate knowledge and understanding of the theoretical and practical content.	1 2 3
	2 Use the theoretical knowledge presented in the course to evaluate experimental results and health related outcomes.	1 2 3

All - Assessment Task 3: End-of-semester examination

GOAL:	To provide you with an opportunity to demonstrate, explain and apply the foundational principles of cell chemistry and cell biology as they apply to human functioning and health practice.	
PRODUCT:	Examination - Centrally Scheduled	
FORMAT:	You will sit an End-of-Semester Examination that will be based on the theory covered in the lectures, practical work in the labs and associated readings during weeks 1-12. The two-hour examination will consist of 100 multiple-choice questions. This exam will be delivered online through the course Blackboard site.	
CRITERIA:	No.	Learning Outcome assessed
	1	Demonstrate knowledge and understanding of the theoretical content. 1
	2	Use the theoretical knowledge presented in the course to evaluate experimental results and health related outcomes. 1 2 3

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. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

7.1. Schedule

PERIOD AND TOPIC	ACTIVITIES
Week 1	Lectorial: Overview of the LFS103 Introductory Bioscience & Cell Chemistry: Matter and the Elements Practical 1: Graphing exercises and figure legends
Week 2	Lectorial: Cell Chemistry: Atoms and their Ions Practical 2: Measurements in Allied Health Practice: Units of measurement, prefixes and equalities, conversion factors and scale bar calculations
Week 3	Lectorial: Cell Chemistry, Ionic & Covalent Compounds and Chemical Reactions Practical 3: Building simple covalent compounds
Week 4	Lectorial: Building Blocks of Life, Chemical Reactions in the Body & Properties of Gases Practical 4: Rate of chemical reactions: and the effects of pH and temperature on enzyme function
Week 5	Lectorial: The Human Body: Cell Structure and Function Practical 5: Studying human cells using the compound light microscope
Week 6	Lectorial: The Human Body: Cell Membrane Transport and Cell Division Practical 6: Osmosis in animal cells & cell division in somatic cells: interphase, mitosis & cytokinesis
Week 7	Lectorial: The Human Body: Tissue Structure and Function Practical 7: The tissue level of organisation
Week 8	Lectorial: Solutions, Concentrations and Body Fluids Practical 8: Mid-semester exam
Week 9	Lectorial: Electrolytes, Acids and Bases and pH Balance in Body Fluids Practical 9: The concept of acids, bases, pH & buffers
Week 10	Lectorial: Introduction to Human Genetics Practical 10: Human genetics and patterns of inheritance
Week 11	Lectorial: Introduction to Microbiology and Infection Control Practical 11: Aseptic techniques in clinical microbiology
Week 12	Lectorial: Microorganisms and Diseases Practical 12: Introduction to diagnostic microbiology
Week 13	Lectorial: Revision, and how to prepare for final exam Practical 13: Task 1(4) Case Study test

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 Blackboard 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	PUBLISHER
Required	Masters, N	2021	LFS103 Course Manual; LFS103 Practical Workbook	University of the Sunshine Coast - Purchase from USC Mail and Print Services (MaPS)
Required	Campbell, Timberlake	2020	Campbell - LFS103 Introductory Bioscience. Vol 1 Timberlake - LFS103 Introductory Bioscience. Vol 2	Custom textbook by Pearson Education, Australia

8.2. Specific requirements

You are required to wear appropriate personal protective equipment (PPE) during the LFS103 practical classes including covered, non-slip shoes, laboratory coat/gown and safety glasses. You must purchase and bring to the practical classes a copy of the LFS103 Practical Manual and Practical Workbook, both are available for purchase from Mail and Print Services (MaPS). Alternatively, these will be available for printing on the LFS103 Blackboard site.

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 Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

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:

- 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. 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.

10.5. 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 or call 07 5430 1226.

10.6. 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 or call 07 5430 2890.

10.7. 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
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.8. General Enquiries

In person:

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

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au