

MLS121 Histology

School: School of Health - Biomedicine

2024 | Session 6

UniSC Sunshine Coast

**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 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

Histology is the area of general pathology concerning cells, tissues and organs in the human body. Basic tissue types -epithelium, connective tissue, muscle, nerves followed by the arrangement of tissues in major organ systems, including the circulatory, lymphatic, integumentary, skeletal, nervous, respiratory, digestive, urinary, endocrine, exocrine and reproductive systems will be covered. Development in histological techniques used in pathology services, including light microscopy, fixation, staining, embedding, sectioning and immunohistochemistry will also be assessed.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Tutorial/Workshop 1 – Interactive tutorials offered through blended learning using an online electronic virtual slide collection and case based group work.	2hrs	Week 1	6 times
Laboratory 1 – Hands on laboratory activities completed as an individual.	4hrs	Week 1	8 times
Learning materials – Interactive activities completed as eLearning modules	4hrs	Week 1	8 times

1.3. Course Topics

1a. Introduction to Histology

- Cell structure in detail
- Overview of the basic tissue types
- Organ systems
- Overview of histological techniques
- Light and electron microscopy

1b. Histology Techniques

- Fixation
- Tissue Processing
- Dehydration, clearing, embedding and sectioning
- Routine & Special Stains
- Cryostat

2a. Epithelial Tissues

- Squamous, cuboidal, columnar
- Simple and stratified
- Distinguishing cellular structures

2b. Connective Tissues

- Connective tissue proper
- Blood
- Cartilage and bone
- Bone cells and the matrix

3a. Muscle Tissues

- Skeletal muscle fibre types
- Cardiac muscle fibres
- Smooth muscle cells

3b. Nervous System

- CNS & PNS
- The neuron and structural classification
- Neuroglia

4a. Integumentary System

- Epidermis, dermis, hypodermis
- Accessory structures (hair, nails, exocrine glands)

4b. Digestive System and Accessory Organs

- GIT, Pancreas & Gallbladder

5a. Urinary System

- Sections of the kidneys (nephron structure)
- Ureters, urinary bladder and urethra

5b. Respiratory System

- Upper respiratory passage and nasal cavity
- Respiratory epithelium
- Trachea
- The lungs, and pleural cavities and membranes

5c. Practical Histology: Immunohistochemistry

6a. Circulatory and lymphatic Systems

- Sections of the heart
- Blood vessels
- Components of the lymphatic system

6b. Reproductive System

- Male – testes and accessory glands
- Female – ovaries, cervix, uterine tubes, uterus, vagina and mammary glands

6c. Skeletal System

- Bone cells revision
- Compact bone structure
- Periosteum and endosteum

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 Identify, describe and classify the microscopic structure of human cells and the basic tissues types through the compound light microscope and virtual slides	Knowledgeable
2 Identify, describe and classify the morphological features of major organ systems in the human body	Knowledgeable
3 Show competency in histological techniques, for routine preparation of cells and tissue for compound light microscopy	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

LFS100 and enrolled in Program SC211, SC385 or UB001

5.2. Co-requisites

LFS112

5.3. Anti-requisites

Not applicable

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

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

Formative and summative quizzes will be available in the first third of the course to provide feedback on your academic progress. You will be introduced to practical content from week 1 and can also attempt virtual morphology online in the tutorials. These activities will provide you with feedback and help prepare you for the assessment tasks in the course.

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	25%	20 mins per quiz	Throughout teaching period (refer to Format)	Online Submission
All	2	Practical / Laboratory Skills	Individual	40%	2 hours	Week 6	In Class
All	3	Practical / Laboratory Skills	Individual	35%	2 hours	Week 8	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Review Quizzes

GOAL:	To identify, describe and understand the compound light microscope, microscopic structure of human cells, the 4 basic tissues types and organ systems of the human body.	
PRODUCT:	Quiz/zes	
FORMAT:	Multiple choice/short answer questions	
CRITERIA:	No.	Learning Outcome assessed
	1	<p>You will be assessed on your ability to:</p> <ul style="list-style-type: none"> -recall factual information in the MLS121 Histology teaching materials -solve problems based on theoretical material and information covered in modules, laboratories and tutorials

All - Assessment Task 2: Practical Histology Exam 1

GOAL:	To develop satisfactory laboratory skills and competencies in Histology that would meet the requirements of the QLD pathology industry for training medical science technicians. Students must complete the training for this assessment in the preceding labs before attending the exam, this includes a minimum of 80% attendance of the laboratory practicals. This is a health and safety requirement.	
PRODUCT:	Practical / Laboratory Skills	
FORMAT:	You will bring in records of the preceding lab training sessions to gain entrance into this exam. Your tutor and lecturer will sign your lab book for each lab and associated lab work completed. This is your evidence that you have been appropriately trained and can demonstrate appropriate health and safety measures to undertake this exam at industry standard.	
CRITERIA:	No.	Learning Outcome assessed
	1	<p>You will be assessed on safety in the laboratory and your ability to embed and section a paraffin tissue sample, undertake staining processes used in pathology testing, identify and describe the techniques for tissue fixation, processing and cryostat</p>

All - Assessment Task 3: Practical Histology Exam 2

GOAL:	To develop satisfactory laboratory skills and competencies in Histology morphology that would meet the requirements of the QLD pathology industry for training medical science technicians. Students must complete the light microscopy and virtual microscopy training for this assessment in the preceding labs before attending the exam. This is a health and safety requirement.	
PRODUCT:	Practical / Laboratory Skills	
FORMAT:	You may be required to provide records of the preceding lab or tutorial training sessions to gain entrance into this exam. Your facilitator will sign your lab book or have an online record for each morphology activity completed. This is your evidence that you have been appropriately trained and can demonstrate appropriate health and safety measures to undertake this exam at industry standard.	
CRITERIA:	No.	Learning Outcome assessed
	1	You will be assessed on your ability to recognise, describe and understand the techniques used to identify the morphological features of organ systems in the body using virtual slides/images online. 1 2

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	Anthony Mescher	2018	Junqueira's Basic Histology: Text and Atlas, Fifteenth Edition	n/a	McGraw-Hill Education / Medical

8.2. Specific requirements

MLS121 is structured to provide you with knowledge and practical skills necessary to meet industry established proficiency standards.

It is therefore an expectation of both the University and our industry partners that you will participate in all of the directed study activities (lectures, laboratories, tutorials) and demonstrate satisfactory proficiency in the practical assessment in order to evidence your preparedness for the placement.

To gain such proficiency you must attend and participate in at least 80% of the laboratory practicals throughout the study period before you are permitted to complete Assessment Task 2 (practical histology exam 1) and you must attain a minimum 50% result for Task 2. You are required to complete the WHS laboratory induction and successfully complete the quiz before the first practical session, wear appropriate personal protective equipment (PPE) during the practical component, including covered, non-slip shoes, laboratory coat/gown and safety glasses, long hair should be tied back.

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

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. 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.

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.

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.

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 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 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