

Liverpool John Moores University

Title: HISTOLOGY AND PHYSIOLOGY
Status: Definitive
Code: **5105BMBMOL** (122383)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ5 **Credit Value:** 20 **Total Delivered Hours:** 56
Total Learning Hours: 200 **Private Study:** 144

Delivery Options

Course typically offered: Semester 1 and Summer

Component	Contact Hours
Lecture	42
Practical	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	ASS1	Exam will consist of students answering essay-style questions	60	2
Portfolio	ASS2	Portfolio will consist of an assessment of the students practical work and an assessment of their ability to recognise histological specimens	40	

Aims

This course aims to develop knowledge of, and practical skills in, histology and to inform students of the basic physiology of the endocrine and nervous systems and to introduce the topic of reproductive science.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of how to prepare tissues for histological examination and use microscopy to recognise the gross structure and ultrastructure of tissues selected from the major organ systems.
- 2 Discuss the structure, function and integration of the endocrine and nervous systems.
- 3 Discuss important topics within reproductive science such as embryology and fertility.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Examination	2	3
Portfolio	1	

Outline Syllabus

Histology: Tissue preparation: fixation, tissue processing, paraffin wax and freezing.

Microtomy: for paraffin wax cryostat sectioning.

Histological staining: general tissue stains, stains to demonstrate connective tissues, carbohydrates, lipids and microorganisms, principles of immunohistochemistry.

Functional histology: Common tissue structures – liver, kidney, respiratory system, GI tract, pancreas.

Nerves: Overview of structure and function. The ionic basis of neuronal activity e.g. action potentials, graded potentials, stimulus intensity and refractory periods.

Emphasis will also be made to synaptic transmission, looking at both electrical and chemical neurotransmitters

Endocrinology: Endocrine control of body functions. Hypothalamic releasing factors, anterior pituitary hormones. Regulation of the secretions of the hypothalamic, pituitary, adrenal, thyroid and gonadal axes. Control of blood glucose. Comparison of steroid and peptide hormone action. Neuroendocrine control mechanisms. Regulation of growth. Deficiency/excess diseases (as appropriate).

Reproductive science: The processes that occur during development of an embryo including the stages from fertilisation to neurulation and the signalling events that occur to form a blastula from a single cell. Detection of hormone levels and fertility.

Learning Activities

Material will be delivered through lectures and practical classes. The lectures will be designed to introduce two main themes to the students histology and physiology, while helping students understand how these topics integrate from a biochemical and biomedical perspective. Students will undertake a substantial practical component to enable them to develop valuable practical skills in histological techniques.

Notes

This module will provide students with an understanding of the scientific basis of histology and physiology. The module will provide the students with an understanding of microscopic structures of tissues and organ systems in the context of cellular activity and physiological pathways and how the endocrine and nervous systems are integrated at the molecular level. Additionally students will also be introduced to the topic of reproductive science.

The portfolio within this module will consist of an assessment of the slides produced in the practical sessions and an assessment of the students' ability to recognise tissue sections and stains. This will be worth 40% of the module.

The exam will consist of three essay questions from a choice of five in two hours. This will be worth 60% of the module

No specific benchmarks are available for this module, but the learning outcomes at least meet, if not exceed, those stipulated in the relevant qualification descriptors for a higher education qualification at level 5 as defined by QAA, Sept 2015. The module has also been informed by the benchmark statement for Biomedical Science June 2015.

Intake is every September.

The criteria for admission to the module require that candidates meet the criteria for admission to the BSc Biomedical Science programme (32805).

The final award is Certificate of Professional Development in Histology and Physiology, 20 credits at Level 5.

The students have access to a module Blackboard site and the University's other range of electronic support such as access to the electronic library facilities. The module content is regularly updated on the Blackboard site including contemporary reading lists and links to journal articles. Students have access to the community site for Biomedical Science. All students have access to the module leader through phone contact and email. Module and CPD guides are also provided, which provide a range of information.

The programme is assessed and run in line with the Academic Framework <http://www.ljmu.ac.uk/eaqs/121984.htm>

The module is accredited by The Institute for Biomedical Science (Sept 2016- Aug 2021). The module forms part of the BSc Biomedical Science programme (32805) which was reviewed in April 2016.

The methods for improving the quality and standards of learning are as follows:

- Annual monitoring Review;
- Liaison and feedback from the students;
- Reports from External Examiner;
- Programme team ensuring the module reflects the values of the current teaching and learning strategy;
- Module leader updating knowledge and skills to ensure these remain current and relevant.

The module is included in the programme specification for the BSc Biomedical Science programme (32805). The module is aligned with the same BSc Biomedical Science module for annual monitoring and external examining purposes.

There is an optional summer presentation of this module available for degree apprentices.