

## Liverpool John Moores University

Title: Experimental Techniques  
Status: Definitive  
Code: **4503YAUZOO** (127945)  
Version Start Date: 01-08-2021

Owning School/Faculty: Biological and Environmental Sciences  
Teaching School/Faculty: Yunnan Agricultural University

Team	Leader
Rachael Symonds	Y

**Academic Level:** FHEQ4      **Credit Value:** 20      **Total Delivered Hours:** 84  
**Total Learning Hours:** 200      **Private Study:** 116

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	6
Practical	72

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Written exam covering microbiology material	16	2
Report	Lab skills	Experimental practice in microbiology and microscopy techniques	16	
Exam	Exam	Written exam covering pathology material	18	2
Report	lab skills	Experimental practice in animal pathology techniques	18	
Report	Report	Experimental report covering pharmacology material	16	
Exam	Exam	Written exam covering pharmacology material	16	2

## Aims

*This course is practical laboratory based and introduces students to a range of techniques to complement their theoretical knowledge. Students will gain an understanding of the practical skills and standardised laboratory methods necessary for microbiology, pharmacology and pathology studies in animals. Students will learn how to handle laboratory instruments and equipment; master laboratory diagnostic methods of pathogenic bacteria, be able to independently analyse experimental results and phenomena, and write standardised experimental reports. Training in microscope observation and ability and methods of pharmacokinetic methods will be covered.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Apply, consolidate and expand relevant theoretical knowledge, enhance perceptual knowledge of theoretical knowledge, and achieve the goal of combining theory with practice.
- 2 Independently observe and correctly describe the basic characteristics of pathological specimens and section of pathological changes.
- 3 Master the incompatibility and adverse drug reactions of commonly used drugs and the action principle and toxicology of pharmacological drugs.
- 4 Through the observation of functional and morphological changes, connect clinical characteristics with theoretical knowledge and conduct comprehensive analysis of common diseases and pathological processes.
- 5 Grasp the basic operation skills of animal experiments, and cultivate a rigorous scientific attitude and practical ability.

## Learning Outcomes of Assessments

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

Written exam	1	4	5	
Experimental practice	1	2	4	5
Written exam	1	4	5	
Experimental practice	1	2	4	5
Report	1	3	5	
Written exam	1	2	3	5

## Outline Syllabus

*The main teaching content of this course includes the basic purpose of experiments and experimental design, and will cover general experimental techniques including: use of microscope oil immersion and observation of basic morphology and structure of bacteria, preparation and staining of bacterial smears, preparation of culture*

*medium, isolation, culture and transplantation of bacteria and fungi, isolation and culture of bacteria and observation of culture characteristics, physiological and biochemical tests of bacteria, bacterial susceptibility test, animal test method, isolation and identification of staphylococci, isolation and identification of enterobacteria, chicken embryo culture. Specific experimental techniques including: the characteristics of general and histological lesions, congestion, haemorrhage, infarction, and thrombosis, and their occurrence mechanisms; general and histological features of atrophy, granule degeneration, vesicular degeneration, myxoid degeneration, amyloidosis, steatosis and necrosis; compensatory hypertrophy, granulation tissue, wound healing, fracture healing, mechanization and encapsulation; the morphological characteristics of formation and calcification; the general and histological characteristics of various types of inflammation; the morphological and histological characteristics of common livestock and poultry tumors, and animal experiments. The influence of drugs on saliva secretion; the determination method of LD50 of drugs; the incompatibility of drugs; the toxic reaction and rescue of streptomycin; the influence of adrenaline on the local anaesthesia of Procaine; the observation of the general anaesthesia effect of tachyporin on rabbits; the observation of the antifoam effect; the catharsis mechanism of wax; nitrite poisoning and its rescue.*

## **Learning Activities**

The module content will be delivered through some lectures and a large component of practical activities and a final exam, to promote the achievement of learning goals.

## **Notes**

Through the study of this module the students will learn to apply their theoretical knowledge in a practical experimental setting. They will cover the pathological characteristics of basic pathological processes, and use these theories and knowledge to analyse and solve clinical practical problems.