

COURSE OUTLINE

LIFS 3220 Animal Physiology Laboratory (Spring 2022)

Tutorial Sessions: Wednesday 18:00 – 18:50 Rm 2406 (Lift 17/18)

Practical Sessions: Tuesday 13:30 – 17:20 Rm 4160 (Lift 33)

Instructor: Dr. Philip Y. Lam (Email: ylam@ust.hk)

Senior Technician: Mr. Y. M. Wong

Technician: Mr. Rickie Leung

Course Assessment:	Quizzes	12%
	Laboratory Performance	12%
	Reports and Worksheets	18%
	Group Proposal	18%
	Written Examination	40%

YOU ARE REQUIRED TO SUBMIT ALL LAB ASSIGNMENTS IN ORDER TO COMPLETE THE COURSE.

Phase 1 – Students will work in groups to learn the experimental technique and methods that can be used in investigating various physiological functions in animals. They will be asked to perform experiments following the instruction in the laboratory manual. Every student is also required to submit a written assignment for each of the experiments.

Feb 15	Introduction to LIFS 3220
Feb 16, 22	Practical #1: Muscle Structure and Function
Feb 23, Mar 1	Practical #2: Reflexes & Reaction Times
Mar 2, 8	Practical #3: Cardiovascular Physiology
Mar 9, 15	Practical #4: Respiratory Physiology
Mar 16, 22	Practical #5: Renal Function

Phase 2 – Students will review the knowledge and technique that they have learned from Phase 1. They will work in groups to formulate a project which aims to answer a question that is related to animal physiology. Each group will be required to submit a project proposal and the instructor will review the feasibility of the project and provide feedback. After obtaining approval from the instructor, students will carry out their planned experiments and each group will be required to submit a project report at the end of the semester.

Mar 25	Project proposal submission
Mar 29	Project proposal consultation and feedback
Apr 12 – May 3	Student-initiated group project
May 10	Deadline for Phase 2 group report

** Date of the **Written Examination** to be announced by the ARRO.

Objectives and Course Learning Outcomes of the Animal Physiology Laboratory Sessions

Objectives

This course is aimed to help you to acquire various basic laboratory techniques in physiology, to develop powers of observation and data analysis in order to test basic physiological principles. This course also helps you to develop your analytical skill and report writing skill by presenting data in a formal laboratory report format.

As indicated in the course outline, this course consists of two phases. In phase 1, you will work in a group to perform a number of experiments as well as to learn various essential skills and technique of experimental animal physiology. In phase 2, your group will formulate and prepare your own project proposal as well as carry out your planned experiments. The teaching team will review the feasibility of your proposal and assist you to complete your self-initiated project. At the end of the semester, your group will need to submit a scientific report of the project.

Course Learning Outcomes

Upon completion of this course, students will be able to:

1. Apply various basic laboratory techniques in physiology to handle animals and tissue.
2. Set up and use precision equipment to study physiological phenomena.
3. Critically observe, qualitatively and quantitatively analyze, and apply physiology knowledge to interpret experimental data.
4. Write formal laboratory reports in a scientific paper format.
5. Work and coordinate effectively in a group to accomplish laboratory-based tasks.
6. Operate ethical laboratory practices such as safety and environmental protection.
7. Evaluate and design laboratory experiments, interpret experimental data and write up the results in accordance with appropriate scientific conventions.

Course Grading

The P/F grade for this course will be determined as follows:

Assessment Tasks	Contribution to Final Grade (%)	Learning Outcomes to be Assessed
Quizzes	12%	3, 7
Laboratory Performance	12%	1, 2, 5, 6
Reports and Worksheets	18%	3, 4, 6
Group Proposal	18%	1, 2, 5, 6, 7
Written Examination	40%	1, 2, 3, 7

Attendance

You are required to attend ALL THE LABORATORY SESSIONS in order to complete the course. Proof of legitimate absence must be provided to your instructor and prior permission from your instructor is required to change the laboratory session.

Quizzes

The quiz is on a sudden and random basis. The quizzes are held in the tutorial session and will consist of multiple-choice questions on the experimental details and theory of experiments.

Laboratory Performance

During the laboratory sessions, you are required to know clearly what you are doing and why you are doing it, in order to accomplish the task(s) efficiently. Good laboratory performance is encouraged and it will be assessed by your Teaching Assistant (TA). The following is a general guideline of the assessment:

- The marks of lab performance are going to the general performance of all the team members throughout the course. The assessment will be focused on the following areas:
 1. Punctuality
 2. Understanding of tasks listed and motivation to accomplish the tasks;
 3. Presentation of experimental procedures;
 4. Communication with group members;
 5. Timing of experiments;
 6. Analysis/ interpretation of the results obtained and understanding of problems with experiments, if they arise;
 7. Clean up the bench after the experiment.

Reports, worksheets, and group proposal

Please refer to the “Guideline for completing assignments” PDF, which is available on Canvas.