



普通生物學實驗

General biology laboratory

- 課程名稱: 課程簡介
Introduction
- 授課教師名稱: 阮淑慧
受務單位: 醫學系生理學科
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學習目標: To introduce students to the real life.

To train students to think scientifically and independently.

To broaden students' knowledge in the process of biomedical research.

To inspire students creativity To build concepts for courses at senior years.

資料來源: Student Lab Manual for Biology Labs
On-Line & The Anatomy of the Laboratory
Mouse

Summary: Content summary for each class.



General Biology Laboratory

Dr. Shu-Hui Juan

LAB 1. Overview of the course and laboratory safety (9/29/10)

- 1. Introduction of course schedules**
- 2. Laboratory safety and rules**
- 3. Requirements for the lab**
- 4. Grouping**
- 5. Turn in a one-inch photo with your name and student ID on it**
- 6. Reminders (lab coat, notebook, and goggles)**



LABORATORY OF GENERAL BIOLOGY

Instructor: Shu-Hui Juan, Ph. D.

Goals:

- 1. To teach students the procedures of scientific research**
- 2. To train students to perform simple experiments and interpret their data**
- 3. To allow students to test some of the knowledge they learn in the biology lectures, and to prepare students for more difficult courses they will learn in their senior years**
- 4. To educate the students to think independently**
- 5. To inspire the students' creativity.**



Week 3 Overview of the course and laboratory safety (09/29/2010)

In this session, I will go over the outline of this course, laboratory safety procedures, and the grading for this course. Following introduction of the course, students have to introduce themselves and to find their teammates for the entire semester.

Week 4 Application of the microscope in biology (10/06/2010)

The microscope is an important tool in scientific research. In this lab, students will learn how to operate a compound microscope and dissecting microscope. In addition, students have to take some blood from various animals, make some blood smears and observe various types of blood cells under the compound microscope. Moreover, students will observe a series of animal and plant tissue slides by using the compound microscope and dissecting microscope.



**Week 5 Identification of macromolecules in common food
(10/13/2010)**

Instructors will teach students some key reactions for detection of proteins, lipids, and sugars. Students have to use the key reactions they just learned to identify the chemical compounds in the food that is consumed or used in their daily life.



Week 6 實驗三、四課程講解
(10/20/2010)

葉脈書籤製作
細胞呼吸和光合作用

Week 7 Making bookmark
(10/27/2010)

葉脈書籤製作



**Week 8 Cellular respiration, photosynthesis and
controlled experimentation
(11/03/2010)**

Students will learn controlled experiments and some basic reactions for detecting oxygen and carbon dioxide. Students will be asked to design experiments to measure the products of cellular respiration and photosynthesis. Students will learn how to design an experiment and to test their hypotheses.



Week 9

Midterm (11/10/2010)



Week 10 Meiosis, reproduction, and early embryonic development

(11/17/2010)

Reproduction is one of the most important functions for all living organisms. In this session, students will learn the process of fertilization, sexual reproduction and embryonic development by watching video tapes.

影片欣賞 遺傳基因
有關減數分裂、繁殖、與早期胚胎發育



Week 11 Group Discussion (11/24/2010)

分類學實驗講解

Lecture for taxologic homework

Week 12 分類學實驗製作

term paper for taxology



Week 13 Mice anatomy and basic animal handling
(12/08/2010)

老鼠解剖學概論及基本動物操作

From week 13 to week 14, students will learn the gross anatomy of the rat and the muscular, skeletal and nervous systems of the rat. **In this lab, students will learn how to anesthetize the rats and how to perform surgery on rats by removing the ovaries or testes.**

Week 14 Animal perfusion and castration
(12/15/2010)

老鼠灌流和老鼠去勢

In this lab, students will learn how to perfuse a rat and the gross anatomy of the rat.



Week 14 **Slide review**
(12/22/2010)

Week 15 **Final exam**
(12/29/2010)



Requirements for General Biology Lab

- 1. Lab notebook**
- 2. Lab coat**
- 3. Simple surgical tools.**



Grading

Attendance	20%
Term paper	20%
Midterm	30%
Final Exam	30%