FD99

BI 210 - Biological Techniques
Chaminade University of Honolulu

Fall, 1999
Gomes/Kaaialii

COURSE OUTLINE AND SYLLABUS

TEXT

No text or laboratory manual will be utilized. Instead, handouts developed from reference sources, laboratory manuals, instrument or equipment manuals and laboratory exercises will be used. A week before each lab you will receive handouts describing the tools, techniques, and rationale for the coming lab. You are to read these prior to the lab not only because it will greatly enhance your proficiency, comprehension and enjoyment of the lab but because there will be a quiz at the start of every lab covering material from the previous lab as well as goals and objectives from the lab for that day. Be warned and be prepared!

COURSE DESCRIPTION

The mission of the Biology Department is to "provide the student with information about living organisms and their environment and thereby increase the student's ability to perceive and make decisions concerning themselves and other living things." In order to accomplish this the department has made a commitment to providing a quality program at all levels of its curriculum. Biological Techniques (BI 210) is committed to providing our majors with both traditional and modern laboratory tools and techniques in order to fully engage in and experience scientific research as defined by the scientific method.

Biology can be taught anywhere. However, it is best taught in the laboratory. Biological research is the foundation **for advances in biology. The laboratory (traditional or field) is the place where this occurs. This course is designed to begin to teach you how to do biological research.**

There are two basic facets to this task. Foremost, the laboratory exercises and instructors aim to teach you the most important, cutting edge, generally applicable, important biological research methods and techniques now used in research. Such equipment, methodology, and/or analyses will serve you wherever you do research in the future, be it at Chaminade or at a facility like the Cancer Center of Hawaii. This course is designed to set a foundation for your future research/laboratory experiences. The second aim of this course is a more practical one. It is to teach you how to use what Chaminade has to offer. We want you to become proficient with our lab at Chaminade. That means knowing where things are, how they are cared for, how they work, what they do and do not do. In order for you to get the most out of your biology education you will want to get the most out of the lab at Chaminade and this course will get you started.

STUDENT GOALS AND OBJECTIVES

At the end of the semester each student should:

1. Know what the scientific method is, how it works, and what role it plays in scientific research.
2. Know where things are in the lab.
3. Know what things do, what not to do, and where it should be done.
4. Know how to care for things in the lab.
5. Know how to order and store supplies.
6. Know some of the basic, most often used, most generally applicable tools, techniques, methodologies and methods of analysis used in biological research.
7. Be comfortable and proficient working in the lab and on the computer.
8. Know how to acquire, learn about and implement new tools or techniques (know how you can broaden your repertoire of research capabilities in the future.
9. Know how to use computers to augment and enhance your research capabilities and presentations.
10. Know what scientific integrity is and how important it is in research.

GRADING

Participation	10%
Homework	10%
Experiment	10%
Quizzes	20%
Practical I	25%
Practical II	25%

NOTEBOOKS

You will be keeping a laboratory notebook throughout the course. The notebook will not be collected and graded, it will be for your use only. It will serve as your major study tool prior to the practical exams. Notebooks should contain a write-up for each of the labs, homework, quizzes, observations, notes to yourself, etc.

EXAMS

There will be two practical exams. Both exams will incorporate written questions as well as lab practical type questions. All of the questions will be based on the laboratories and any reading material associated with them.

QUIZZES

Quizzes will cover material and methods learned in the prior week's lab and goals and objectives of the lab to be done on that day. Be ready for a quiz each week.

HOMEWORK

Each lab may have an accompanying homework assignment. The particulars about each assignment will vary from lab to lab.

ABSENCES

Do not miss this class without an excuse. Since we only meet 13 times the entire semester a single unexcused absence effectively means you've missed almost 10% of the course! That is comparable to missing 5 lectures of a course meeting M-W-F! Missing one lab without an excuse will definitely hurt your grade. If you present some form of a document signed by your doctor then an absence can be excused. If you are experiencing some genuinely stressful situation other than illness (death in the family, abuse, pregnancy, etc.) let your instructor know and we'll see what we can do about it. Athletes - if you have to miss for a game or travel inform the instructor prior to your absence.

COURSE SCHEDULE

DATE	TOPIC	INSTRUCTOR
8/30/99	Introduction & Course Mechanics Designing Research Projects, Acquiring Tools, Gathering and Using Data	Dr. Kaaialii
9/6/99	HOLIDAY = LABOR DAY	
9/13/99	Scientific Method and Fast Plants The Big Experiment QUIZ 1	Mr. Gomes
9/20/99	Lab Safety, MSDS Safety Sheets, Chemical Stockroom, Ordering and Receiving Supplies, Housekeeping QUIZ 2	Mr. Gomes
9/27/99	Disposition of Equipment and Materials QUIZ 3	Dr. Kaaialii
10/4/99	Making Solutions QUIZ 4	Dr. Kaaialii
10/11/99	HOLIDAY - DISCOVER'S DAY	
10/18/99	Finding, Collecting, and Transporting Specimens QUIZ 5	Dr. Kaaialii
10/25/99	Animal Care and Maintenance QUIZ 6	Mr. Gomes
11/1/99	PRACTICAL EXAM I	Mr. Gomes
11/8/99	Blue Plants and Specialty Equipment QUIZ 7	Mr. Gomes
11/15/99	Ecological Instrumentation QUIZ 8	Dr. Kaaialii
11/22/99	Computers, Videos & Laser Disc Use, Scientific Integrity QUIZ 9	Mr. Gomes

11/29/99	Proper Figures, Graphs, Tables and Illustrations QUIZ 10	Dr. Kaaialii
12/6/99	PRACTICAL EXAM 11	Dr, Kaaialii