BI 102L General Biology II Laboratory
Spring 2002 Chaminade University of Honolulu
Thursdays 2-4:50 PM Henry Hall 8

Dr. **Joan Kuh**
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Office Hours: MWF 11-12 or by *appointment*

This laboratory course accompanies the Biology 102 lecture course. ***However,*** it is a distinct course from the BI 102 lecture for which a separate grade will be assigned. The aim of the laboratory course is to provide the student with practical experience in the concepts presented in lecture including concepts from evolutionary biology, systematics and anatomy/physiology of plants and animals. Preparation of written laboratory reports and maintenance of laboratory notebooks will provide experience in collecting, interpreting and reporting experimental data.

Course Information

Text: There is no text for this course. Handouts will be provided to you for **each** lab.

Attendance: Attendance is MANDATORY for the laboratory. There is only one laboratory section for this course so it is essential that you come to lab every Thursday at 2 PM. This includes labs with field trips. Laboratory absences that are approved by the **instructor** PRIOR to the lab are excused. * * *Unexcused absences will result in the lowering of the final grade by one letter grade for each unexcused lab absence.

Grade Determination: The grade the student earns in this course will be based on:

1. Lab notebooks. [2@ 25 points each] Lab notebooks are an essential element to practicing science. The purpose of the lab notebook is to keep a complete record of your laboratory experiments including expectations (hypotheses), observations and data. A bond composition notebook or a three ring binder can be used. Notebooks will be collected at each midterm exam and graded.

2. Lab reports. [2@ 50 points each]. Laboratory reports are to be written in the format of a scientific publication which will be discussed early in the semester and for which you have guidelines for. More specific information on the content and format of the reports will be given in the handout for that laboratory exercise.

3. Assignments. [4@ 10 points each]. These are short 1-2 page assignments that involve research on the internet or analysis of experimental data.

4. **Writing/research** assignment. [1 @ 50 points]. This assignment is intended to give the student experience in research on a scientific topic. Two references, one of which may be a text book, must be included. The other may be a journal, periodical or a web site that specializes in the topic area. Suggested topics are listed on the last page of this syllabus. Only one student from the lab section can write on the topic and you must indicate to me which topic you will be doing. If you would like to do your paper on another topic, please see me personally with your suggestion.

   The paper must be three pages or less. Papers must be typed on a computer within a word processing program. Please make sure to run a spell check on your paper! Use single line spacing and 12 point sized font. Any paper turned in after the due date and time will be penalized one letter grade. No papers will be accepted after 24 hours beyond the due date and time.

5. Lab Exams. [2 @ 75 points each]. There will be two lab exams. The second lab exam is not cumulative, e.g., it covers material only from the first lab exam.

6. **Quizzes. Quizzes will be given at the beginning of many laboratory sessions. Important safety and technical aspects of experimentation are accomplished by being familiar with WHY you are doing an experiment and HOW you will conduct the experiment. Familiarity with the steps in the laboratory will minimize accidents and increase the likelihood of success in conducting the experiments.**

Grades will be assigned on the following scale: A > or = 90%, B > or = 80%, C > or = 70%, D > or = 60% and F as receiving < 60% of the total possible points.
Class standing: I will try to keep the class informed of the class curve particularly after the first midterm exam. Students with D or F grades will receive deficiency notices prior to the April 8 drop date deadline. Students who receive one of these notices are strongly encouraged to make an appointment to see the instructor to discuss their further progress in the course.

Writing Assignment Suggested Topics:

1. **Flu vaccinations--- how the CDC decides which strain to vaccinate for? Why are they important? What other alternatives to fighting the flu are available?**
2. **Select an endangered or endemic Hawaiian species and report on its habitat, any unusual anatomical or physiological features and what challenges it faces, e.g., why is it endangered?**
3. **Whales and their four-legged terrestrial ancestors---what is the most recent evidence?**
4. **Kidney dialysis---when is dialysis required, how does it work and what happens if it fails to work?**
5. **Hawaii coral reef system---how healthy is it? What are the challenges that face this system?**
6. **What is mad cow disease? What is Jacob-Creutzfeldt Syndrome? How are these two related?**
7. **What is phytoremediation? What are some examples or areas that phytoremediation is being tried? What are the physiological/anatomical features of the particular plants being used in phytoremediation?**
8. **Carnivorous plants---do they photosynthesize?**
9. **Genetic engineering of plants---pick some examples and investigate as to why are they being modified?**
10. **Pollen and pollen allergies---how does it cause so many problems?**
11. **What is xenotransplantation? Should it become standard medical practice? What are some of the species under consideration for sources of organs for humans?**
12. **Atherosclerosis-what does it cause? What causes it? What are the current treatments? Future treatments being discussed.**
13. The *genetic* **causes (or precursors) to obesity.**
14. **Select an autoimmune disease (juvenile diabetes, rheumatoid arthritis, SLE) and report on who usually has it, what blood cell type is involved, what tissue is attacked, any genetic causes identified?**
15. **What is Epogen? Who makes it and how? Who uses it and how much is the treatment? Is it ethical to allow only one company the right to make it?**
16. **BRCAl test---what is it for? How much does the test cost and who markets the test? Is it ethical to have one company with the rights to own this test given how the gene was discovered?**
17. **Any new species discovered in the time you've been in BI102 or in the last year? Report on these and where they were discovered. Why have they not been identified earlier?**

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Laboratory schedule: The following is a TENTATIVE schedule of labs for this course. Changes may be made as deemed necessary during the course of the semester. Any changes will be announced as soon as possible.

Date	Topic
Jan 17	*Introduction/ Video "Death by Design "*
Jan 24	*The Scientific Method and Scientific Writing* (Assignment I due Jan 3 1)
Jan 31	*Evolution and Population Genetics* (Lab report required/due 2/14)
Feb 07	*Evolution on an Island*
Feb 14	*Systematics Lab*
Feb 21	*Microbes, Microscopes and Antibiotic Sensitivity* (Lab report required/due 2/28)
Feb 28	Lab Exam I (notebooks due)
Mar 07	*Plant Systematics---Field trip to Foster Botanical Garden* (Assignment II-due Mar 14)
Mar 14	*Plant Anatomy and Reproduction* [Writing Assignment - due April 18]
Mar 21	*Earthworm Anatomy and Physiology*
Mar 28	Spring Break
Apr 04	*Marine Biology and Systematics---Field Trip to Waikiki Aquarium* (Assignment III due Apr 11)
Apr 11	*Mammalian Anatomy & Physiology---Part I*
Apr 18	*Mammalian Anatomy & Physiology---Part II* [Writing Assignment due]
Apr 25	*Nutrition Lab* (Assignment IV due in lab)
May 02	Lab Exam 11 (notebooks due)