

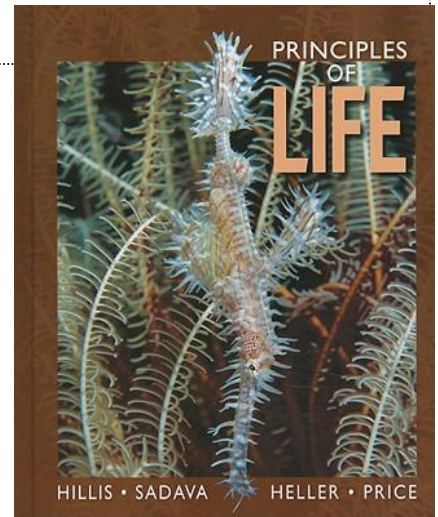
MR. GIRARD'S E.C.E. UCONN BIOLOGY 1107 CLASS SYLLABUS



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Texts Used:

Principles of Life; (2012) ISBN: 978-1-4292-9117-0; David Hillis, David Sadava, H. Craig Heller, and Mary Price.

Cliffs AP Biology; (2007) ISBN: 978-0-470-09764-9; Phillip Pack.

INTRODUCTION: The University of Connecticut's Early College Experience in Biology at Plainville High School is a course designed for students that have a strong interest in, or desire to pursue a career in the sciences. The Biology 1107 course is designed to offer students topics that are covered in a Biology course at the university level. Students accepting the challenge of this course will be required to actively participate in six lecture periods and three laboratory meetings per 8-day cycle that are conducted during the 1st semester. Lab time accounts for 50% of all instructional time and lab assessments will account for 35% of your grade. This is a laboratory course in which students are expected to identify and use patterns in collected data to solve biological problems. In addition, students will apply biological knowledge and critical thinking to environmental and social concerns. Some labs will require your attendance after school to complete investigations begun during the school day and attendance is mandatory. No student is permitted to miss more than 20% of the lab activities and still receive UConn credit.

To succeed in Biology 1107, students must be highly motivated to learn. Reading requirements for the course are rigorous and require a daily commitment in order to stay caught up in the class. Exams generally cover 3 - 4 chapters in the text and occur every 3 - 4 weeks depending on the content being covered and the number of labs that are conducted during the unit. All laboratory activities suggested by the University of Connecticut, and other supplemental labs, are conducted to give you a fair representation of a university-level Biology course. Independent research and primary journal readings are also required in addition to the lab work. A course exit exam created by University of Connecticut Professors will be cumulative for the content from this semester. A final grade of 'C' or better is required to receive UConn credit.

THE GOAL: This course is designed to:

- 1) Present an in depth, College Level Study of the Biological Sciences and apply biology to real world applications.
- 2) Help students develop college level critical thinking skills, writing skills, and study habits
- 3) Develop a love of Biology and its complexity

SUPPLIES: PLEASE BRING THE FOLLOWING ITEMS EVERY DAY:

1. Your textbook: *Principles of Life*. Hillis et.al.
2. Three ring binder for labs and loose-leaf paper.
3. Pen and pencil
4. Wit, intellect, and positive mental attitude

GRADING:

1. Laboratory work and reports 35%
2. Exams 60%
3. Journal readings 5%

STATEMENT OF ACADEMIC HONESTY: I will make a clear distinction between work that must be your own and work that is done in groups. Make sure you also make that distinction. Cheating and Plagiarism will have severe consequences. Copying or helping another person on a test will result in a ZERO (0) on the test for ALL involved. An assignment, such as journal readings or formal lab reports, copied from another student, the Internet, or any other source will result in a ZERO (0) on that assignment.

FORMAL AP BIOLOGY LAB REPORT RUBRIC

1. Abstract: (20 pts)

This provides a summary of your report. The abstracts will consist of a sentence or two of introduction which includes the objectives of your experiment, a description of the investigation to be conducted, methods, rationale for the hypothesis you have made, and background information which needs to be cited using MLA format.

2. Problem: (5 pts.)

This should be a concise description of what you are studying and ideally should be a question that is posed.

3. Hypothesis: (10 pts.)

Statement which ties together the independent and dependent variables in the experiment or investigation. The hypothesis is what you think will happen during the investigation. It differs from a guess in that it is based upon prior knowledge or evidence. It should be supported by previously developed evidence and/or concepts. A null and alternate hypothesis will be included in your genetic research lab.

** Reminder: The hypothesis should be the statement that drives your laboratory investigation ... and represents your best prediction of the results based on prior experience with the problem.

4. Materials & Procedure: (25 points):

Include a description of materials and equipment used in the labs in the steps for performing the lab. Be specific but brief. Write this section in past tense, without pronouns, and in paragraph form. Diagram and label the setup of equipment for the lab. The procedure must include an identification of the independent and dependent variables and the control(s) in the experiment.

** Reminder: A well designed experiment should have one clearly defined independent variable and at least one control.

5. Data/Results: (10 points)

Create a data table as appropriate for all observations and measurements. Show the work for any required calculations as well as appropriate units. Include a graph of data as appropriate with appropriate titles, labels, and regression analysis where appropriate. DATA TABLES & GRAPHS SHOULD BE LABELED WITH EITHER FIGURE OR TABLE (e.g. Figure 1. The fecundity of *Drosophila melanogaster*) AND CONTAIN A SUBTITLE OR HEADING.

Do not hide or eliminate suspected faulty data but present it. Later, in your CONCLUSIONS, you may explain why you have decided not to use suspected errors in your analysis. Good scientists present the data they obtain even when it is suspected to be faulty. They explain why they feel they are in error in the discussion of their results later. This is why a true experiment has many trials and much peer review occurs before results are accepted by the scientific community at large.

Include error calculations as appropriate when directed by the instructor.

Data may be qualitative (observational without numbers) or quantitative (with numbers) or both. Often qualitative data may be used to support or explain discrepancies in quantitative data in your conclusion.

6. Conclusion/Discussion: (30 points)

Summarize the important procedures and result(s) of the lab. The conclusion should clearly tie the results of the experiment to the hypothesis and a discussion of why the hypothesis should be accepted or rejected must be completed in detail.

A good conclusion/discussion not merely restates the results or the procedure ... but it should tie any errors in the procedure to deviations from the expected results. Explain any uncertainties in the observations/measurements. Identify and explain how sources of error influence the lab results.(some sources of error could include equipment/instrument error, procedural setup error, human error, etc.)

Discuss how the lab could be modified to improve the results.

***Cite all literature used in the abstract using MLA format as appropriate. FAILURE TO PROVIDE PROPER CITATION WILL RESULT IN A ZERO ON THE LAB

Use the Curriculum map below to plan your chapter readings, labs, & journal readings

Month	Content	Reading	Lab
September	Chemistry of life Cellular structure & endomembrane system Cell membranes and transport Cell energetics Enzyme function and regulation Thermodynamics	Chap 2 pg 17-32 Chap 3 pg 34-45 Chap 4 pg 56-76 Chap 5 pg 78-91 Chap 6 pg 100-113	Forest heterogeneity Diffusion & Osmosis Inquiry Lab Enzyme Catalysis Cell Respiration of crickets
EXAM #1			
October	Cellular communication Cell cycle and regulation Meiosis & sexual reproduction Protein synthesis DNA replication Prokaryotes Genomes Gene regulation	Chap 5 pg 91-98 Chap 7 pg 124-140 Chap 9 pg 165-185 Chap 10 pg 187-206 Chap 11 pg 208-224 Chap 12 pg 226-242 Chap 19 pg 366-371	Cell Communication Mitosis & Meiosis Karyotype Protein synthesis model Turning genes on & off Gram staining Bacterial Transformation
EXAM #2			
November	Biotechnology Bioenergetics Animal structure and function Nutrition Circulation Respiration Thermoregulation Osmoregulation (excretion)	Chap 13 pg 244-262 Chap 14 pg 263-284 Chap 29 pg 588-601 Chap 37 pg 729-744 Chap 38 pg 746-763 Chap 39 pg 765-782 Chap 40 pg 784-797	Inquiry PCR - LAB WRITEUP Restriction, PCR & Electrophoresis PCR based Alu-Human DNA typing Enzymatic digestion of food Leukocyte differential Cardiac output ABO/Rh typing Physiology of circulation
EXAM #3			
December	Reproductive & development Nervous Endocrine Musculo-skeletal Immune	Chap 30 pg 603-618 Chap 31 pg 620-637 Chap 32 pg 638-653 Chap 33 pg 655-670 Chap 34 pg 672-693 Chap 35 pg 695-711 Chap 36 pg 712-727	Lung volumes - dry spirometer Urinalysis Zygote growth model ELISA of HIV antibody Reaction time Anthropometry
EXAM #4			