

TO POST

1. Schedule for coming week:

Date	Material (Chapter)	Locations	Comments
F 23 Oct	Chapter 15	SJH 204: 2:30-3:25 MAR 329: 3:35-4:30	
M 26 Oct	Chapter 15	SJH 204: 2:30-3:25 MAR 329: 3:35-4:30	
W 28 Oct	Video, Great Transitions CB Raymond	SJH 204: 2:30-3:25 MAR 329: 3:35-4:30	Will not be on test, but will be on final
F 30 Oct	TEST, CHAPTERS 10-16	SJH 204: 2:30-3:25 MAR 329: 3:35-4:30	
M 02 Nov	Death & Dying Symposium; time to prepare report	Little Theater 3:30-5:30	See message board

2. For those doing the effort to rewrite the 1st test: Please comment which are the strongest points and which you consider not to be valid and consolidate your answers to a final version. That will complete the exercise. See the comments under #6.

3. Potential questions for Second Test:

Test possible questions. There will be some restriction on choices (i.e., questions will be grouped). There will be one question using graphs.

1. State the major tenets of Malthus' argument and defend the proposition that he is correct.
2. Argue for or against the position that Malthus is the true father of the theory of evolution.
3. Describe, in your own words, the primary inferences of Darwin's hypothesis. Be prepared to defend each one with appropriate evidence. Is there any evidence to the contrary?
4. Some inherited characteristics are not inherited according to the simple rules that Mendel saw. For instance, when one crosses red and white flowers, one might get pink flowers. Can you formulate a hypothesis as to how this might work?
5. Can you speculate how scientists determined that genes were arranged in a linear manner on the chromosomes? What evidence would they have needed? Do not look at this question as an expectation of your knowledge of detail. Consider how you would go about determining whether or not there was an order to a string of beads, based on how frequently you encountered specific groupings and breaks.
6. For any of the "cool trick" experiments described in Chapter 15, describe the ELF logic on which it is based. Are there any flaws or limitations to this logic?
7. Which of the "really cool tricks" do you find to be the most intriguing? Why?
8. Because of the strength of the bonds that hold proteins and lipids together, biological lipids tend to melt at approximately 104° F (40° C), while protein structure falls apart at approximately 122° F (50° C). Do you think that this has anything to do with the fact that people tend to hallucinate when they have high fevers? How hot does water have to be for you to be burned by it?
9. If a protein can contain 1000 amino acids, why should the change of a single amino acid make a difference in how it functions? (Hint: wrap something like a flat electrical cord carefully around a suitably wide structure such as a broomstick. Wrap the wire so that each loop lies side-by-side to the loops next to it. Now do the same thing but attach something the size of the plug to the middle of the wire. What happens?)

10. What do we mean, “The code is universal”?
11. If the code is universal, could you for instance use ribosomes and tRNA from bacteria and mix them with mRNA from humans and expect to get a human protein synthesized? Why or why not?

4. **Mandatory assignment:** (There will be something similar on the second test): Everyone should review question 1 from the first test (go to the website on GoogleDocs, <http://docs.google.com/Doc?docid=0AS6MFU9833WAZGhuNGp4djRfMjE0Z3N6cHhoZDM&hl=en>) and follow or add to the discussion.

You must review the lessons in the Graphbook

(<http://www.lockshinlab.org/graphbook/GraphPart1.htm#CHOICE%20OF%20AXES> and other sections in the handout, and be prepared to answer the following questions:

- a) What variable is likely to be the controlling variable, the one that, by changing, causes the other to change?
- b) Which variable is likely to be controlled by the other?
- c) What plausible mechanism operates so that the controlling variable influences the controlled variable?

5. **Mandatory 3-page (typed, single space) report on your exploration of a museum, film, or website: Due by Dec. 1. May be emailed.**

What did you find most interesting and related to this course about:

- a. Museum of Natural History, or its website (<http://www.amnh.org/>) *
- b. Smithsonian Institution, or its website (<http://www.si.edu/>) *
- c. WGBH, Nova on Evolution (<http://www.wgbh.org>; you can find Nova on the site, or also look through <http://www.pbs.org/wgbh/evolution/library>)
- d. The Scopes trial and its modern versions (you can watch the classic Spencer Tracey film, *Inherit the Wind*, in low resolution as classicspencertracy.avi.flv in the \Professor's folder or see a more modern, made for television, version in higher resolution but with ads at <http://www.hulu.com/watch/34114/inherit-the-wind>). We will show another film in class. You can Google “Scopes trial”.
- e. The Burgess Shale (Google it or start with <http://paleobiology.si.edu/burgess/index.html>).
- f. The National Academy of Sciences website (start with <http://www.nationalacademies.org/evolution/>); you can find other materials)
- g. The websites of the prehistoric caves of Europe (see references in Chapter 29 of book, page 401).

You must collect references, reading books and visiting websites. References are available in *The Joy of Science*. YOU MUST EXPLAIN WHAT YOU FOUND INTERESTING, WHAT YOU LEARNED, AND WHY YOU FOUND IT TO BE INTERESTING AND VALUABLE.

Do your collaborations online, in discussion sections, editing in Google Docs

*You can search for “evolution” or similar topics on the site.

6. COMMENTS ON THE QUESTION REWRITES:

1. Critique each other's listings, draw a line at the bottom of your comments, and summarize the best arguments that you would use in a final answer. You can add notes, preferably as comments, as to why you think that these arguments are superior to the others.
2. Do NOT cut-and-paste from web-based or other available material. I need to see that the information has traversed your brain, and if I do not see how you express the idea, I cannot help you to improve clarity, organization, or anything else.
3. For question 1,

Question 1: Go to <http://www.lockshinlab.org/graphbook/GraphPart1.htm#CHOICE%20OF%20AXES>, look at this and anything else that you don't know, and reconsider the question.

What variable is likely to be the controlling variable, the one that, by changing, causes the other to change?

Which variable is likely to be controlled by the other?

What plausible mechanism operates so that the controlling variable influences the controlled variable?

Now replot the data, explaining your argument.

n [North America](#), El Niño creates warmer-than-average winters in the upper Midwest states and the Northeast. Meanwhile, central and southern [California](#), northwest [Mexico](#) and the southwestern U.S. become significantly wetter while the northern Gulf of Mexico states and northeast Mexico are wetter and cooler than average during the El Niño phase of the oscillation.^{[21][22]} Summer is wetter in the intermountain regions of the U.S. The Pacific Northwest states, on the other hand, tend to experience dry, mild but foggy winters and warm, sunny and early springs.

In Canada, both warmer and drier winters (due to forcing of the Polar Jet further north) occur with warmer and less stormy summers, although relatively little variation is seen in the Maritime Provinces. However, it is believed that the [ice-storm in January 1998](#), which devastated parts of Southern Ontario and Southern Quebec, may have been caused or at least accentuated by El Niño's warming effects.^[23]

El Niño is also associated with increased wave-caused coastal erosion along the United States Pacific Coast.