

Tropical Biology — San Salvador 2015

The list of questions that follows this introduction is intended to provide you with a focus in keeping field notes and in writing your papers for the tropical biology course. Your field notes should include coverage of both terrestrial and marine ecosystems as the course progresses. Naturally, you may include appropriate phenomena not directly addressed by the questions when answering them. You will not be penalized for evidence of thinking or for speculation! Please note that library research is expected but we are also looking for your in-person observations of ecosystems on San Salvador.

In this course you must turn in three papers. All students will write one essay on terrestrial ecosystems and one essay on marine ecosystems. All students must also submit a transect survey field report (see additional handouts). Each of these papers must follow the guidelines. Failure to submit the required papers at college-level quality, will result in a grade of "F" for the course.

In grading your papers, the instructors will take into consideration your major, your class-level, and the science courses that you have taken (including Tropical Biology-Belize/Costa Rica). It is expected that seniors with much experience will submit focused, insightful, synthetic, and well-written papers. The expectations for underclassmen are adjusted to account for less experience. The attached cover sheet must accompany your papers to assist the grading process. Finally, keep in mind that the instructors' observations of your attitude and attention during the field section of this course also contribute to your final course grade.

Terrestrial Ecosystem

In your first paper, respond to the following:

In what ways have San Salvador's geographic location, geologic origin and climate influenced its terrestrial flora and fauna? In answering this question, you should consider:

- the native terrestrial flora and fauna present at the time Columbus landed and the flora and fauna present now; and
- how the plant communities presently inhabiting San Salvador compare with those of the continents and other islands in the region (*e.g.*, Caribbean; Bermuda) with regard to taxonomic diversity (*e.g.*, species genera, families, *etc.*) and relative abundance (predominant versus rare plants), and
- the reasons for the observed patterns in the distribution, diversity and abundance.

Marine Ecosystem

In your second paper, respond to the following:

In what ways have San Salvador's geographic location, geologic origin and climate influenced its marine flora and fauna? In answering this question, you should consider:

- the native marine flora and fauna present at the time Columbus landed and the flora and fauna now; and
- how the coral reef communities (*i.e.*, algae; corals and other invertebrates; fish) of San Salvador compare to those of other islands in the region (*e.g.*, Caribbean; Bermuda) with regard to taxonomic diversity (*e.g.*, species, genera, families, *etc.*) and relative abundance (predominant versus rare organisms), and
- the reasons for the observed patterns in the distribution, diversity and abundance.

Guidelines for Writing Essays

Here are a few guidelines for you to follow when you write your papers. For a more thorough introduction to writing about science please consult Jan A. Pechenik's *A Short Guide to Writing about Biology* (Addison-Wesley Educational Publishers, Inc.) or Karin Knisely's *Writing in Biology* (Sinauer/MacMillan).

1. Papers must be typed (12 point font) and **double-spaced** with a one-inch margin on all four sides.
2. Library research is **expected** and citations must follow general scientific usage. Generally ideas are paraphrased rather than quoted, but all paraphrased ideas must be credited to the original author. You do this in one of two ways in the body of your papers: 1. (Author, date) if author is not part of the sentence . . . or 2. Author (date) if author is used in the sentence.

Example Citations Within the Essay:

- a. The spurge group is the largest genus within the order Euphorbiales (Curtis, 1975).
- b. Felgenhauer and Abele (1985) believe that grapsid crabs probably have the widest ecological distribution among decapod crustaceans.

Example Citation References in the Literature Cited Section

This section must appear at the end of each essay and there must be a full reference for each citation made in the body of your paper.

a. Books:

Curtis, E.W. 1975. Bermuda - a floral sampler. Bermuda Press Ltd., Bermuda. 52p.

b. Journals:

Felgenhauer, B.E. and L.G. Abele. 1983. Branchial water movement in the grapsid crab *Sesarma teticulatum* Say. *Journal of Crustacean Biology* 3:187- 195.

There must be a one-to-one correspondence between literature cited in the text of your papers and the alphabetized references in the "Literature Cited" section at the end of your essays.

3. There should be NO quotations (paraphrase instead!) or footnotes, under any circumstances.
4. The length of EACH of the essays should be about five pages but no more than six pages. The total number of pages, then, will be approximately ten and not more than twelve for the two essays.
5. Try to make your essays a synthesis of 1) what you have learned in other courses, 2) what you have learned about Tropical Biology by reading, and 3) what you learned about San Salvador through your own observations while there (this is where thorough, detailed field notes are invaluable). We do not want essays that could have been written without your ever having been to the Bahamas. We do not want essays that reflect no reading on your part. All three components are critical to each essay!
6. You should keep a copy of your essays before you turn them in. This would be critical should a package be "lost" in the mail, etc.
7. All three papers must be turned in by June 29, 2015, to Dr. Booth. If you plan to mail your papers to the University, the postmark must read no later than the given date. Lateness will result in substantial grading penalties. There are NO acceptable excuses for late papers!

Tropical Biology — San Salvador 2015 Cover Sheet for BIO 320 Papers

This sheet must accompany the two essays and the one field report to be submitted for grading purposes. The pages for each paper should be stapled in the upper-left corner. Both essays must have the topic (Terrestrial Ecosystem or Marine Ecosystem) and your name on the front page. The two stapled papers and the separately stapled field report should be placed in a large envelope along with this cover sheet. Please do not submit your papers in sleeves, binders, folders or other covers. The envelope must be received, or postmarked, by June 29, 2015.

Name _____ Major: _____

Including Spring 2015, I have been a college student for _____ semesters and I have _____ credits on my transcript.

I have checked off the courses I have taken at, or transferred to Eastern:

- | | |
|--|---|
| <input type="checkbox"/> CHE 210/2 General Chemistry I | <input type="checkbox"/> BIO 363 Field Ornithology |
| <input type="checkbox"/> CHE 211/3 General Chemistry II | <input type="checkbox"/> BIO 365 _____ |
| <input type="checkbox"/> CHE 216 Organic Chemistry I | <input type="checkbox"/> BIO 378 Biological Research Data Anal. |
| <input type="checkbox"/> CHE 217 Organic Chemistry II | <input type="checkbox"/> BIO 422 Res. Meth. in Molec. Bio. |
| <input type="checkbox"/> BIO 120 Organismal Biology | <input type="checkbox"/> BIO 424 Cell Physiology |
| <input type="checkbox"/> BIO 130 Ecology | <input type="checkbox"/> BIO 424 Biology of Cancer |
| <input type="checkbox"/> BIO 220 Cellular & Molecular Bio | <input type="checkbox"/> BIO 428 Virology |
| <input type="checkbox"/> BIO 230 Population Bio/Genetics | <input type="checkbox"/> BIO 430 Endocrinology |
| <input type="checkbox"/> BIO 270/365 Desert Ecology | <input type="checkbox"/> BIO 432 Histology |
| <input type="checkbox"/> BIO 320/360 Tropical Bio (Costa Rica) | <input type="checkbox"/> BIO 434 Developmental Biology |
| <input type="checkbox"/> BIO 324 Entomology | <input type="checkbox"/> BIO 436 Molecular Genetics |
| <input type="checkbox"/> BIO 330 Cell Biology | <input type="checkbox"/> BIO 440 Aquatic Biology |
| <input type="checkbox"/> BIO 332 Biology of Plants | <input type="checkbox"/> BIO 442 Plant Ecology |
| <input type="checkbox"/> BIO 334 General Microbiology | <input type="checkbox"/> BIO 444 Pop. and Comm. Ecol. |
| <input type="checkbox"/> BIO 336 Invertebrate Biology | <input type="checkbox"/> BIO 446 Terrestrial Ecology |
| <input type="checkbox"/> BIO 338 Vertebrate Biology | <input type="checkbox"/> BIO 448 Physiological Ecology |
| <input type="checkbox"/> BIO 340 Parasitology | <input type="checkbox"/> BIO 450 Biotechnology |
| <input type="checkbox"/> BIO 342/438 Plant Physiology | <input type="checkbox"/> BIO 452 Conservation Biology |
| <input type="checkbox"/> BIO 346 Animal Behavior | <input type="checkbox"/> BIO 454 Biological Invasions |
| <input type="checkbox"/> BIO 348 Funct'l Human Anatomy | <input type="checkbox"/> BIO 456 Marine Ecology |
| <input type="checkbox"/> BIO 350 Human Physiology | <input type="checkbox"/> BIO 458 Regenerative Medicine |

I have taken the following geology or earth-science courses:

I have thoroughly edited and revised my papers at least once and I have proof-read them.

Pointers for your papers

(based upon papers from past years)

By proof-reading, we mean that you have:

- examined your papers closely...complete sentences?
- read them thoroughly...are these ideas or just "word hash?"
- revised them more than once (never submit a first draft!)
- used a spelling checker
- used a Collegiate Dictionary or a Biology book to check the spelling of words not in the computer's dictionary
- examined each sentence for number agreement (i.e., to be sure that, if you have a plural subject, the verb is also in a plural form: One goose is; three geese are)
- looked up each apostrophe (') and determined that all cases are used ONLY for possessives (except for the possessive: *its* which has no apostrophe!). The apostrophe is used for contractions (including *it's* for *it is*) but formal writing is no place for contractions; write out all contractions! In formal writing, *its* never has an apostrophe.

While there may be some **moss** on San Salvador, it is limited to a few patches in marshy zones inland which you are very unlikely to see. At the shore you are observing **algae** or other organisms, not moss! There are no marine mosses...no marine bryophytes!

If you have one individual thallus or one species, it is an **alga**. If you have two, then you have **algae**. There is no such word as *algaes*.

Organisms do not attract rain or sunlight. One may use water or light more efficiently than another. A plant might reorient its leaves to intercept more light; it might reshape its leaves to redirect water to its roots. But an organism can only collect the rain or light that falls upon it; there is no "magnetism" with respect to falling water or incident light.

What you find in a location is determined in part by how carefully you look. Be careful not to say that one place where you searched thoroughly by turning rocks and spending hours has more species than another place where you merely swam by.

Desiccation...spell it correctly.

Turbidity and *turbulence* are different qualities of water. Be careful to use the correct one!

Use the word *effect* when you mean "a result" as in "the effect of this treatment was" and never use the word *effected* in your papers (there are better ways to say what you mean).

Do not use these words at all: *affect*, *affected* or *affecting*. Again, there are better words to use. If you mean that a factor influenced something, well, did it increase or decrease it? *Increase* or *decrease*, *exacerbate* or *ameliorate*, *advanced* or *delayed*, and *accelerate* or *decelerate* are far better word choices than *affected* because they tell the direction of the influence!

Throughout is a single compound word. It is NOT two words.

Then is the opposite of *now*, *than* compares two things (this is greater than that).

Be sure that each of your papers demonstrates

- your learning about the subject both from reading in books or journals
- your personal experiences on San Salvador
- your previous course experience