

BIO 123 – Foundations of Biology: Biodiversity

Section 2, Spring 2017

Quick facts

Course

Web page: <http://www.cpp.edu/~jcclark/classes/bio123/>

Time and place: TTh 8:30–9:45 AM – 15-1807

Class Nbr: 30886

Text: Freeman, S., et al. 2014. *Biological Science*, 5th Edition. Pearson. (The 4th edition may work, but you are responsible for any changes in the 5th edition.)

Final exam: Tuesday, June 6, time to be determined

Instructor

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Office hours: T 10:00 a.m. – Noon, Th 10:00–11:00 a.m., or by appointment

Course policies

Attendance

Because well over half of the material covered in exams will be from information presented in lecture, it is highly recommended that you attend class regularly.

- Roll will be taken on the first day of class if the section is full, and no-shows will be dropped.
- i>Clicker exercises are part of the course grade, and you must be present for at least half of them (i.e., 50% of the lectures) to receive full credit.

Academic integrity

Cheating will not be tolerated. If you do any of the following, you will receive a zero for the exercise or “F” in the class, and the Office of Judicial Affairs will be contacted:

- Plagiarism of any work. Plagiarism is intentionally or knowingly presenting the work of others as if it were your own work. Copying text from a reference or another student word-for-word without properly quoting and citing it will be taken as intent to plagiarize.
- Cheating during in-class exams. The following acts are not allowed during exams: looking at and/or copying from another student’s exam, using “crib-sheets”, opening books, and obtaining copies of exams in advance of the exam time.
- Cheating during Blackboard exams (as explained below).

- Using an i>Clicker registered to another student in order to record a response for that student.
- Use of study aids not sanctioned by the professor.
- Falsifying university documents.

Course materials

Materials for the lecture (handouts and study guides) and for the lab (manuals for each lab) will be posted on the Blackboard site or the public web page for this class. If you have trouble logging onto either one, please call the Help Desk (909-869-6776).

Study groups

Many (but not all) students do better in a course when they study together. Here's an opportunity to make this work for you directly.

- A group should consist of no fewer than three people and no more than seven.
- A study group should meet at least once, for a period of at least an hour, before each exam.
- New study groups can be formed for each exam—if you don't like the members of your group, find or create another one.

Graded evaluations

Practice evaluation

The practice evaluation will be administered in Blackboard; it is a practice for the Blackboard graded study sessions. It will test your knowledge of the syllabus and other course documents, and of basic concepts covered in BIO 121 and BIO 122. It will be available for five days. You must complete the evaluation during that period; there are no make-up evaluations. You may refer to the course documents to answer the questions.

Graded study sessions

Graded study sessions evaluate your knowledge as the quarter progresses, and prepare you for the final exam. They will be administered in Blackboard, and no class time will be allocated for them.

- Each graded study session will be available for five days. You must complete the evaluation during that period; there are no make-up evaluations. Please check out your internet connection in advance, and have an alternate place to take the evaluation if your chosen locality doesn't work out. Don't wait until the last minute—procrastination isn't an excuse, nor is any sort of unforeseen emergency that arises on the last day.
- Each graded study session will consist of 40-60 multiple choice questions that emphasize factual information, problem solving, connections, and synthesis. Graded study sessions will cover material presented in the lecture, and material from the text and assigned readings that directly supports material from the lecture.
- You may use any reference material to help you with the evaluation, including your textbook, other books about biology, and the World Wide Web. You are responsible for coming up with the answer I expect even if your reference gives a different answer. If you clearly believe that

your reference is correct and I am wrong, be prepared to substantiate it with the same level of referenced argumentation that you would be expected to provide in an upper-division term paper.

- Groups of students enrolled this quarter are encouraged to form study groups (see above). You may receive assistance from, and give assistance to, any member of your study group during the graded study session. You are ultimately responsible for all your answers, even if you were given incorrect information from another person, whether or not that person is a member of your study group.

Final exam

The final exam will be given on Thursday, June 6, time to be determined, in the lecture room. You must be present for the final; there will be **no makeup exams**, and students unable to take the final exam will receive an incomplete grade in the course.

- The final exam is cumulative. It will consist of questions taken from the Blackboard graded study sessions (they may be edited for clarity if students found them initially confusing), and up to 20% new questions, to cover material presented after the last graded study session and to re-visit other topics from the course. It will consist of 50 multiple choice questions. You will provide your answers on a Scantron.
- No testing aids may be used on the final: no textbooks, exam guides, crib sheets, smart phones, laptops, calculators, or any other resource beyond a Scantron sheet and a #2 pencil.
- Study groups are of course encouraged to study together for the final, but they have no special privileges during the exam.

Term Project

The requirements for the term project are linked from Blackboard and the public web page, and are available directly from http://www.cpp.edu/~jcclark/classes/bio123/Three-taxon_analysis_S2017.pdf. There are specific instructions in that document for turning in the assignment.

You are encouraged to begin the project at the beginning of the quarter. You can turn it in any time prior to the due date, which is 11:59 p.m. on Tuesday of the last week of lecture (May 30). You may discuss the project with your classmates, but the project you turn in must be entirely your own work.

The project differs somewhat from Fall 2016, and substantially from quarters before that. If you turn in an assignment that meets the requirements of Spring 2016 or before, regardless of whether it is plagiarized or your own work, you will receive an “F” for the entire course.

i>Clicker assignment

During each lecture, I will present one or more multiple choice questions to be answered by i>Clicker. The first (and sometimes only) question will often be at the beginning of the lecture. Your use of your i>Clicker during the lecture will be recorded—only once, no matter how many questions there were, and not counting whether your answer is correct. If you have “clicked in” for at least half the lectures, you will receive full credit; your score will be proportionally less for fewer “click-ins”.

i>Clickers *must* be registered through Blackboard.

Grading

The points for the course will be distributed as follows:

Practice evaluation	1%	Apr 3–7
Graded study session #1	9%	Apr 17–21
Graded study session #2	9%	May 8–12
Graded study session #3	9%	May 26–June 2
Course Project	11%	Due May 30
i>Clicker assignment	1%	
Final Exam	60%	Jun 6
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	100%	

90% = A, 80% = B, 70% = C, 60% = D, and < 60%=F. The grades just below 90% may receive an A- or a B+, and likewise for B, C, and D, at the instructor’s discretion.

BIO 123 and BIO 123L are graded separately; if you are taking both, your grade in one will not affect your grade in the other.

Blackboard has a “Total” column that simply adds up the points. If I don’t remember to hide it, please ignore it—it is meaningless, since your final grade is calculated as percentages of percentages. When the actual calculated score is available, it will be called “Course percentage”.

Lecture schedule

Week	Date	Day	Topic	Readings
1	2017-03-28	Tue	Introduction	
	2017-03-30	Thu	Similarity and difference	Ch. 25.2; Ch. 28
2	2017-04-04	Tue	Phylogeny and classification; Practice evaluation, April 3–7	Ch. 1.4; Ch. 28
	2017-04-06	Thu	What are prokaryotes	Ch. 29
3	2017-04-11	Tue	Bacteria and Archaea	Ch. 29
	2017-04-13	Thu	Symbiosis and the origin of the Eukarya	Ch. 30
4	2017-04-18	Tue	Unicellular eukaryotes; First graded study session, April 17–21	Ch. 30
	2017-04-20	Thu	Multicellularity	Ch. 11, esp. 11.2; pp. 562-563; review plant and animal structure
5	2017-04-25	Tue	Stramenopiles and rhodophytes	Ch. 30
	2017-04-27	Thu	Plants	Ch. 31
6	2017-05-02	Tue	Fungi and lichens	Ch. 32
	2017-05-04	Thu	Animals	Ch. 33
7	2017-05-09	Tue	Protostomes; Second graded study session, May 8–12	Ch. 34
	2017-05-11	Thu	Deuterostomes	Ch. 35
8	2017-05-16	Tue	Viruses	Ch. 36
	2017-05-18	Thu	Biomes	Ch. 52.2–52.5
9	2017-05-23	Tue	Factors affecting biodiversity	Ch. 55.4
	2017-05-25	Thu	Why do we run the universities?	Ch. 35.4
10	2017-05-30	Tue	How humans influence biodiversity; Term Project due; Third graded study session, May 26–June 2	
	2017-06-01	Thu	Domestication	Ch. 57
Finals	2017-06-06	Thu	Final Exam, time to be determined	

Description, goals, and outcomes

Description

Biodiversity is examined at molecular, cellular, organismal and ecological levels with an emphasis on phylogenetic relationships. Laboratory provides exposure to basic laboratory and field techniques and introduces major groups of living organisms, habitats in which they reside and factors affecting their ecology and evolution. Designed as the third of three foundation courses required of all majors offered by the Biological Sciences Department. Prerequisites: BIO 121/121L, 122/122L.

Course goals

“Biodiversity” is the last class in the Foundations of Biology series because the class topic, biodiversity, is affected by everything you learned in the two previous Foundations courses. The term “biodiversity” (diversity of life) is interesting in itself because life has taken on millions of forms. The main question we will address in this class is: Why are there so many forms of life? More specific questions will include:

- What are the driving forces for biological diversity?
- What roles do energy transformation and reproduction play in the diversification of life?
- How do people study biodiversity?

By addressing these and other questions it is expected that you will have an understanding of what exactly constitutes biodiversity and why life has taken on so many forms.

Expected outcomes

On completing the last course in the Foundation Series (BIO 123/123L), you will be able to describe, identify and/or explain:

- How biological information is maintained, expressed, transmitted, and altered.
- How life forms grow and change in appearance and abilities.
- The main ways life forms monitor, respond to and are affected by their surroundings.
- How living organisms are categorized and relationships investigated and analyzed.
- The evolution of living forms and their diversity.
- Theoretical and historical foundations of ideas, discoveries, applications and human involvement.
- How biology is integrated with other sciences.