

**SYLLABUS****BIOLOGY 3000-001: FRONTIERS IN BIOLOGY  
CSU Stanislaus**

Lectures: Tuesdays and Thursdays 3-4:30pm in 135 Science 1 (aka S 135)  
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Office Hours: MW 1-2pm and T 12-1pm, or by appt.

Welcome to Biology 3000! Frontiers in Biology is intended to present non-biology majors with an overview of issues in biology, ecology, and environmental science. If you don't feel confident about your abilities in science, don't worry! Because the class is filled with students with diverse backgrounds and academic interests, everyone will have a unique perspective on the topics we cover, which should make for a very interesting semester! It is my hope that you will leave this course with a greater appreciation for the beauty and value of our natural resources, a greater understanding of science especially as it applies to the study of biology so that you can make more informed decisions about issues that affect you in your daily life.

Unlike Principles of Biology (BIOL 1010), which covers an overview of all aspects of biology, this course is specifically focused on current issues in environmental biology. Therefore, there are many fields of biology that we will skip or just cover very briefly, such as anatomy, physiology, metabolism, etc. If you want to get a more complete overview of the field of biology, BIOL 1010 is a better choice than this class. This course satisfies the B2 (life science) lower division general education requirement.

**REQUIRED COURSE MATERIALS**

*Access to the Blackboard course website.* Go to <http://my.csustan.edu> and click on the "Blackboard" link on the left side of the page. Log in and look for section 001 of Biology 3000 to find course content. I will post lecture slides, readings, assignments and study tools on the Blackboard website; check it regularly for updates.

*Essential Environment 4<sup>th</sup> Edition by Withgott and Laposata.* Should be available in the Bookstore and from online sellers. Other supplemental readings will be posted on the course Blackboard website.

*I-clickers are required for this course.* I-clickers will be used every day in class, and you are responsible for bringing your remote daily. Register your i-clicker online at [www.iclicker.com/registration](http://www.iclicker.com/registration) right away using your CSU Stanislaus student ID number and remote ID (series of numbers and letters found on the bottom or back of your i-clicker remote; be sure to include all the preceding zeroes of your ID number, e.g. 000456123). **You can purchase a used clicker and re-register it under your name; however, they now charge a \$7 fee to register a used clicker (I agree, it stinks, but it's still cheaper than a new one).** Keep a few spare batteries with you just in case.

**Important Dates:** Census Date is Feb. 23<sup>rd</sup>. This is the last day to drop the course or change your grading option without my signature. Apr. 16<sup>th</sup> is the last day to change your grading option with my signature. I strictly adhere to the grading option Academic Records has on file for you when I submit final grades. **I will not change grades once final grades have been submitted.** Consult your advisor before making your decision.

**Special Accommodations and Recording Lectures:** Recording my class in any form (video, audio, still pictures, etc.) without my permission constitutes intellectual property theft and is not permitted. However, students with documented disabilities should seek special accommodations for all classes through the Disability Resource Services office (DRS) on campus in 210 MSR. Once DRS notifies me of the ADA accommodations you need you will receive them. NOTE: Student athletes who will miss class for games/matches should have their coach contact me, and I will do my best to accommodate your schedule.

## GRADING AND POINTS

Midterm Exams (2 @ 125 pts each)	250 pts
Cumulative Final Exam	175 pts
Quizzes (10 @ 5 pts each)	50 pts
Position papers	75 pts
<u>Clicker questions and activities</u>	<u>200 pts</u>
<b>Course Total</b>	<b>750 pts</b>

**This course will be graded on a straight percentage, not a curve** (A = at least 675 pts; B = between 600 and 674 pts and so on). Grading will include plus/minus.

## COURSE COMPONENTS

- **Lecture:** The start of lecture is a good time to ask questions that came up during the reading or after thinking about the previous lecture's material. I will provide outlines of my lecture slides before class on the Blackboard website (these are outlines only, not the full lecture slides). I encourage you to print them and take notes directly on them or using your tablet or laptop. These slides are not a substitute for attending lecture! They are intended to help you organize your notes only. The day after each lecture I will post the full lecture slides so you can check for anything that you missed. **Because of this, I recommend writing down what you hear and what we are discussing, rather than try to copy every word from each slide.**

I will assume that you have completed the reading for each day's lecture (schedule provided below) and have come prepared to discuss the material and apply concepts. There is plenty of research that shows that students who regularly attend class get higher grades. You will be actively participating in lecture via clickers, question/answer, group discussion and activities, and may work individually or in groups. **In-class activities and clicker questions cannot be made up if they are missed (the lowest 4 clicker scores will be dropped).** Clickers make class more interactive, help me make my teaching (and your learning) more effective, and allow you to earn points for participation and activities. Assignments, quizzes and clicker questions represent a substantial portion of your final grade (see point breakdown above). Because of the weight given to these assignments, a student who gets an A on all of the tests but only comes to class on exam days could end up with a lower grade in the course, while a student averaging a C on tests could earn a higher grade if they come to class and participate on a regular basis.

Lecture will focus on the more difficult and complex parts of the material. Each lecture will come with 'learning objectives'. These are questions that you should be able to answer by the end of the lecture. These questions are also a good study guide when preparing for exams since they emphasize the most important aspects of each lecture topic. **I encourage you to ask questions during lecture; if you have questions, chances are other students do too.**

We will be having many discussions, both in small groups and amongst the entire class. Listen carefully before speaking; make sure you understand the previous comment before adding your own. You should feel free to speak whenever you wish (avoid interrupting, of course), even if your ideas don't feel complete. However, try to avoid dominating the conversation, some people take longer to formulate their thoughts. Share your own personal experiences; you have a unique background and perspective that is different from everyone else in class!

- **Exams:** The course is divided into 3 units. The first two are accompanied by midterms, the final will cover material from the whole course but will emphasize the last unit. Exams will consist of a mix of multiple-choice, true/false, matching and fill-in or short answer questions (no essays). Exam questions can come from the *reading* and the *lectures* for each unit. **You are responsible for bringing your own Scantron forms to exams (type 882E) and a #2 pencil.** Exam dates are on the schedule below.

Make-up exams will only be allowed in extreme circumstances (hospitalization, death of a family member for example). Oversleeping or traffic/car problems are not acceptable excuses for missing an exam. **You are responsible for notifying me via email as soon as possible, and documentation of the emergency is required before a make-up exam will be given.** Once I grade and hand back an exam, however, no make-ups will be allowed under any circumstances. Generally, this means that a make-up exam must be taken within a week of the original exam date. If this is not possible, you will have to accept a zero on that exam. Make-up exams will be different from the one given to the rest of the class.

- **Quizzes:** There will be 12 graded quizzes during the semester (5 points each), one per week except for weeks with an exam. Quizzes will be based on the lecture content for that day's lecture. **Quizzes cannot be made up, but the two lowest quiz scores will be dropped.** Quiz questions may also show up on midterms or the final. Quizzes will be taken on a separate Scantron 882E form that we will re-use throughout the semester.
- **Position Papers:** For each topic we cover, you will be given a scenario and asked to form an opinion about it (a position) which you need to back up with factual evidence and/or argument (logical or ethical). For example, you may be asked whether or not immigrants should be required to be vaccinated against common diseases before being allowed into the United States. You would then choose to agree or disagree and back up your opinion with facts, logic and/or ethics. You will need to bring a written summary of your position and supporting evidence/arguments (should be about half a page typed, single-spaced or a full page if handwritten) to class on the due date (see schedule below). We will be discussing the results in groups, and you will need to record the best counter-arguments to your position (or try to come up with some if all of your group agrees with each other) to turn in. Remember, there is no right or wrong answer, it's all how you support your position.

## GENERAL POLICIES

- Unless told otherwise, you must complete and submit your own work for all assignments. You may work with other students on activities, but the end product of this work *must always* be your own, written in your own words created by your own brain. Anything else is cheating.
- Be on time. I know that sometimes arriving late is unavoidable, but please enter the classroom *quietly*. If you must leave early, again, exit *quietly* to minimize disturbing others as you leave.
- Eating and drinking are fine during lecture, but please use common sense. Keep the mess and noise to a minimum, and clean up after yourself. No eating is permitted during exams.

- **I encourage interaction and questions during lecture, but please don't talk while I am talking. Be respectful of me and your fellow students who are here to learn (and are paying to take this course). Likewise, cell phones should be silenced and put away during lecture. Laptops/notebooks are okay as long as the sound is off and you're not web-browsing. I may walk around the room as I'm lecturing or during activities, so be forewarned! I will not hesitate to dock points from folks who are chit-chatting while I'm lecturing (and don't have a question). The same goes for texting or web-surfing during lecture.**
- This class is a "judgment-free zone" at all times. This means that while you may disagree with somebody's opinion on a subject, you do not have the right to insult or criticize them on a personal level. Discussions are more interesting and lively if people do disagree on a subject, but we need to be critical of the position, not the person. I will not tolerate hostility in the classroom, and anyone participating in this behavior will be escorted out of the room and not allowed to return for the rest of the class period.

## HOW TO SUCCEED IN THIS COURSE

This course covers a large amount of material, and keeping up with the material is critical to earning a good grade. In fact, catching up is very difficult, if not impossible, if you fall behind. It is simply not possible to cram. Biology has a language all its own (most of it Latin I'm afraid), and this will take time to master in addition to difficult concepts. Make the knowledge yours, don't try to memorize! Do not be overly concerned if you do not immediately grasp the material, if it were that easy we would not need lectures.

To maximize your success in this course, I recommend that you:

- Attend class regularly. Take good notes: write down what you hear, don't try to copy down every word on each slide. Pay particular attention to diagrams and boldface terms. Fully participate in group activities.
- Consistently read the assigned readings before lecture. Focus on boldface terms and try to answer the summary questions at the end of each chapter section. Take notes while you're reading, especially where you have questions.
- Set aside time for **daily, focused, uninterrupted studying**. Review and re-write your notes after each lecture, preferably the same evening but definitely within one day. I can't stress enough how useful this is.
- Engage the material **deeply** and **critically**. Some of the ideas may cause you to question your assumptions or values. Try not to dismiss these feelings; instead, try to be open to new viewpoints and understandings. Treat your education as if it is helping prepare you to change the world (which hopefully it is!).
- Once you realize you don't understand something, do something about it! **Don't wait until the day before an exam to address your knowledge gaps**. See me, consult the textbook or other sources, consult with your fellow students, do whatever it takes so that you understand what you need to understand. What you should NOT do is nothing.
- To most effectively learn it's important that you spend time with it in an **active** way: discuss it with your peers, making tables, charts, diagrams, flashcards or outlines and describe concepts in your own words.
- Study groups are very helpful! Get to know your neighbors; some or all of these students might be interested in meeting as a study group outside class a few times a week. Test each other with flashcards. Explain things to each other. There is no better way to learn something than to have to teach someone else, and no curve means no competition. And who knows, you may meet someone special (I did ☺).

- Tutoring services are available to assist you on campus: [www.csustan.edu/tutoring](http://www.csustan.edu/tutoring), call 209-667-2642, or check out Library 112. The **Central Valley Math & Science Alliance**, located in 124 Naraghi Hall, is a free walk-in science and math tutoring center. Both student and faculty tutors are available from 9am – 5pm daily, there should be someone available to answer your questions. The **Biology Club** is a group of students who have gone through general biology courses and they are willing to offer advice and help, especially if you buy them coffee or bring them cookies.

## CHEATING

My policy is the same as that of your other instructors. Bottom line: just don't do it. The consequences are not worth the risk. Taking time to study offers a much bigger payoff than cheating. Anyone caught cheating or plagiarizing will automatically receive a zero on that assignment or exam, a referral to a disciplinary committee, and quite possibly an F in the course! Protect your academic integrity; it's one of your most valuable assets. Examples of cheating: passing off someone else's work as your own (not citing sources properly in papers or copying), using multiple clickers to click for someone else, using your cell phone during a quiz or exam, or looking at someone else's exam.

## COURSE GOALS AND LEARNING OBJECTIVES

The first major goal of the course is to help students improve their **ecoliteracy**: an understanding of how natural systems make life on earth possible. The second goal of the course is to help students explore, challenge, and articulate their assumptions and positions about environmental problems and effective management of natural resources.

Students who successfully complete this course will gain:

1. An understanding of the important theories and concepts of environmental science and ecology that are used to describe environmental systems, such as population growth, biomes, food webs, biogeochemical cycles, and biodiversity;
2. Familiarity with the major environmental and natural resource problems facing California and the world, in the present and in the future, including causes and potential solutions;
3. An improved ability to form opinions and create understanding based on the interpretation of scientific information, including graphs and other forms of data.

The 7 Goals of Biology GE Courses:

1. Provide an overview of basic knowledge, principles, methodologies, theories, and perspectives in biology.
2. Offer opportunities to work in groups with other students to practice effective communication about concepts and issues in biology.
3. Provide a broad understanding and appreciation of biology and encourage continuous inquiry and lifelong learning.
4. Provide the framework to critically evaluate and use information from various scientific sources to answer questions relevant to biology.
5. Understand the relationships between the fields of biology, chemistry, physics, geology and other sciences.
6. Appreciate the interdependence of humans, natural ecosystems, and the diversity of life on earth.
7. Develop more informed and responsible citizens with respect to issues concerning the living world.

Make the most out of your educational opportunities here—I will do my best to help you succeed in any way possible, but ultimately it is up to you.

**SCHEDULE (Subject to change as necessary)**

Week	Date	Topic	Reading	
0	Jan. 27	Intro/Syllabus, Science		
0	Jan. 29	Evolution	BB	
1	Feb. 3	Microbes	BB	
1	Feb. 5	Immune Function, Vaccines	BB	
2	Feb. 10	Antibiotic Resistance	BB	Position paper due
2	Feb. 12	DNA Structure and Function, Mutation	BB	
3	Feb. 17	Cancer, DNA Technology	BB	
3	Feb. 19	Forensics, Profiling	BB	Position paper due
4	Feb. 24	Sustainability, Ecosystems	Ch. 1, 2	
4	Feb. 26	Midterm 1		
5	Mar. 3	Biodiversity, Population Ecology	Ch. 3	
5	Mar. 5	Community Ecology	Ch. 4	Position paper due
6	Mar. 10	Community Ecology, Environmental Economics and Policy	Ch. 4, 5	
6	Mar. 12	Environmental Economics and Policy, Agriculture	Ch. 5, 7	
7	Mar. 17	Agriculture	Ch. 7	Position paper due
7	Mar. 19	Environmental Health and Toxicology	Ch. 10	
8	Mar. 24	Water in California	Ch. 12	
8	Mar. 26	Water in California	Ch. 12	Position paper due
9	Mar. 31	Cesar Chavez Day		
9	Apr. 2	Midterm 2		
10	Apr. 7	Spring Break		
10	Apr. 9	Spring Break		
11	Apr. 14	Air Pollution, Climate Change	Ch. 13,14	
11	Apr. 16	Climate Change	Ch.14	
12	Apr. 21	Biodiversity Loss	Ch. 8	Position paper due
12	Apr. 23	Conservation Biology	Ch. 8	
13	Apr. 28	Reserves	Ch. 9	
13	Apr. 30	Noise, Natural Gas and Sage-Grouse	TBA	
14	May 5	Energy Development Impacts	Ch. 15	
14	May 7	Energy Development Impacts	Ch. 15	Position paper due
15	May 12	Renewable Energy	Ch. 16	
15	May 14	Waste Management	Ch.17	
	<b>May 21</b>	<b>Final Exam</b>		<b>2-4pm</b>