



**BIOL 1050-001 "General Biology 1"
CSU Stanislaus
Course Syllabus**

Instructor: Dr. Michael Fleming

Phone: (209) 664-6923

Office Hours: Mon 1:30 – 2:30, Tue 11:30 – 12:30, Wed 4-5, or by appointment.

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Class Sessions: Mon/Wed/Fri 9:00 – 9:50am, 101 Naraghi Hall (a.k.a N 101)

Pre-requisite: Pass BIOL 1010 with a C or better, or high school biology with a B or better. While not required, I highly recommend that *if you are currently in or still need to take ENGL 1000, ENGL 1001, ENGL 1006, MATH 103, MATH 106 or MATH 110, please consider taking BIOL 1050 another time!*

Course Description: The purpose of BIOL 1050 (and later, BIOL 1150) is twofold: (1) to introduce students to the breadth of the biological sciences and (2) to help beginning biology majors master fundamental concepts, theories, and skills needed for success in later courses. This course is the first in the two-course majors' intro biology series, and emphasizes cellular and molecular biology, genetics, and microevolution. Course learning objectives will be met through a combination of lecture and lab experiences. **A grade of C- or better is required to move forward into General Biology 2 (BIOL 1150).**

This is a survey course, meaning we will cover a lot of material at a rapid pace. I will ask you to think at high cognitive levels beyond basic memorization of facts, and how to apply what you learn in this class to choices you make in your life and professional career. **This course is fast paced, language intensive, and utilizes basic algebra and statistics. It is critical that you spend considerable time outside of class actively studying to be successful in the course.**

Lab: There is a required lab section for this class, for which you register separately. Along with this lecture section, you should be enrolled in one of the following lab sections:

Section	Day and Time	Lab Instructor
BIOL 1050-002	Tue. 9:00 – 11:50am	Dr. Kamal Dulai
BIOL 1050-003	Thur. 9:00 – 11:50am	Dr. Jennifer Cooper
BIOL 1050-005	Wed. 2:00 – 4:50pm	Mrs. Erica Fleming

All lab sections meet in Naraghi 211. Note that your lab course will have a separate syllabus and course page in Blackboard, and you will need to buy the required lab manual. Points earned in lab factor into your overall BIOL 1050 grade; you will receive only one grade for BIOL 1050 despite being enrolled in two separate sections.

I am a firm believer in reinforcing concepts learned in lecture with activities in lab that illustrate these concepts. Data support the hypothesis that students in science lecture courses do better if they take the relevant lab in the same semester. I will endeavor to reinforce, assess, and keep pace with concepts and skills you learn in lab.

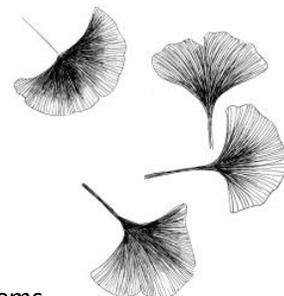
Text: *Campbell Biology in Focus, 2nd edition* by Urry et al. The one you get at CSU Stan bookstore is a loose-leaf version (\$72 used/rental - \$120 buy/new). Of course you can also find the text easily online, maybe for more money, maybe less. The new text from our bookstore comes with an access code for a

website called Mastering Biology; you can use MB for extra practice and studying, but I won't require it of you. However, you should bring the relevant sections of the text to class with you to follow along. Students who don't bring the text to class generally earn lower grades than those who do.

Announcements: Check Blackboard (Bb) often for updates, lecture slides, study guides, etc. Note that your lab section will have a separate Blackboard page; that instructor may or may not utilize it.

Course Goals: In a broad sense, when completing this class you should be able to:

1. Demonstrate your ability to think like a biologist;
2. Speak & write coherently about biology with biologists and non-biologists alike;
3. Apply biological knowledge to make informed decisions in your life.



More specific to biology, you should be able to articulate how:

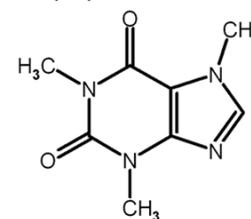
1. All living things arise from a common ancestor.
2. Biological structures exist at all levels of organization, from molecules to ecosystems.
3. A structure's physical and chemical characteristics influence its interactions with other structures, and therefore its function.
4. Biological molecules, genes, cells, tissues, organs, individuals, and ecosystems interact to form complex systems.
5. Cells/organs/organisms have multiple mechanisms to perceive and respond to changing environmental conditions.
6. Energy and matter flow between organisms and the abiotic environment.
7. Organisms have complex systems that integrate internal and external information, incorporate feedback control, and allow them to respond to changes in the environment.
8. Organisms inherit genetic and epigenetic information that results in their physical and behavioral characteristics.
9. Species evolve over time, and new species can arise, when allele frequencies change due to mutation, natural selection, gene flow, and genetic drift.

As learners and citizens of this class you should be able to:

1. Practice self-assessment and reflection while developing the necessary study skills for success in science coursework.
2. Use scientific inquiry as a means of understanding the natural world.
3. Make connections between the facts of science and its relevance to broader societal issues.
4. Demonstrate a professional and respectful manner when communicating and working with peers, instructors, and staff, as practice for success in the workplace and community.

My Teaching Philosophy: My teaching philosophy is grounded in high expectations, accountability, and belief in appropriate behavior conducive to learning. Five principles guide my teaching philosophy:

1. All students can become lifelong learners.
2. Significant change requires significant commitment and time.
3. Struggle is a necessary and important part of life.
4. Students must accept responsibility for their learning progress.
5. I will never do for students what students can do for themselves.



That said, I will work hard and appeal to multiple learning preferences to help you succeed in this course. Hopefully we'll also have a few laughs as we go along.

Participation and Attendance: Please arrive to class on time and ready to learn. I expect all students to attend every class session. Plenty of research shows that final grades are positively correlated with attendance and attention. To this end **you will be able to earn *classroom activity* points in every class meeting, but cannot make them up if you are absent.** Thus, if you miss more than two class meetings, your final grade will be negatively affected! Assignments are due at the start of class (or on your way out if we did it in class). You will talk and work frequently in small groups, and sometimes present your ideas to the entire class. Most importantly, please do not disrupt the learning environment, rights, and property of others. Of course, all gadgets and technology not conducive to learning in the course should remain unused during class. Be honest, hold yourself accountable for your actions, and hold me accountable for mine.

Respectful Classroom Atmosphere: This class is a “judgment-free zone” at all times. This means that when you disagree with somebody’s opinion on a subject, you do not have the right to sling insults, raise your voice, or criticize them. I most certainly encourage disagreement on controversial topics and conversations are livelier if people do disagree on a subject. However, polite civil disagreement and outright hostility are two very different things. I will not tolerate hostility in the classroom in any form, 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.

Evolution: “Respect for data, comfort in faith.” Someone much wiser than me told me this a long time ago, and it has stayed with me since. If you can live by this wisdom then you’ll be fine in this class. Evolution and natural selection are central tenets of biology and will be critical aspects of this course, openly discussed and referred to frequently.

Math: Every biologist uses math and statistics. In this class you will use some math as it applies to biology. This mostly includes making and interpreting graphs, but will also include calculating averages and variation around an average, and interpreting and calculating simple statistical metrics such as chi-square tests, t-tests, etc. I will help you and there will be chances to practice.

iClickers: You will need to purchase/rent/reuse an iClicker remote device, available at the CSU Stan bookstore (\$30 - \$47). Register it at www1.iclicker.com/register-clicker/. Expect to use it most days in class.

Assignments: You will submit four summaries of course content, each spanning several weeks of course material. See the document “Summary Rubric” on BlackBoard for tips on how to maximize points on summaries. I will endeavor to get graded summaries back to you by the next class meeting so you can use them to study for exams. Other assignments will come in the form of preview/review questions, in-class concept reviews & discussion, and clicker questions. If you are absent from class you cannot make up clicker or concept review points.

Preview/Review Questions: The Preview/Review questions for each chapter (or the parts of chapters we cover) help you to prepare for each day’s class session and later to test your knowledge of terms, understanding of concepts, and mastery of the material. Please use these questions to help yourself to be ready for class each day; after we complete each chapter, use the questions to test your knowledge. The Preview/Review questions will also be your homework for the course. There are four due dates in total. A set of questions will be due on the morning of each midterm; the final set of questions will be due on the last day of the semester before finals. You will submit typed answers to the questions through a Google form. The link will be available in Blackboard. I recommend typing answers to the

questions as we complete each chapter. You can check your work and submit prior to each due date. Together, the homeworks will be worth a total of 100 points over the course of the semester. My hope is that working your way through the Preview/Review questions will allow you to earn points while interacting with the material to really master the topics we will cover this semester.

Exams: There are three midterms and one final exam. Midterm exams cover a single unit; the final is comprehensive (~35 old material, ~65 new material since midterm #3). Exams will consist of multiple choice and short answer questions. You will need a scantron form for all exams. Requests for early exams must be submitted in writing prior to the scheduled exam with evidence of your hardship. If you miss an exam and have to make it up, you will also need to provide some evidence of hardship. No makeup exams will be given after graded exams are returned to the class.

Cheating and Plagiarism: Don't do it! Your work should reflect your own effort and words. Any verified instance of cheating and/or plagiarism will be unpleasant for all involved. At minimum, verified instances of cheating or plagiarism will result in the offending student receiving an automatic F in the course and being referred to the Dean of Students for further disciplinary action.

Special Accommodations and Recording Lectures: This course is ADA accessible. Students with documented disabilities should seek special accommodations for all classes through the Disability Resource Services office on campus (MSR 210). If DRS notifies me that you require ADA accommodations then you will receive them. Examples of ADA accommodations include extra time for exams, permission to record lectures, and note-taking assistance. If you record my class in any form (video, audio, still pictures, etc.) without accommodation from DRS, that constitutes intellectual property theft and will be unpleasant for all involved. NOTE: Student athletes who will miss class for games/matches should have their coach contact me, and I will accommodate your schedule by allowing alternate test dates and/or excusing points missed in class.

Grades: There are 1000 points possible in this course:

Activity/Assignment	Points Possible	% of Total Points
Midterm Exams (x3)	300	30%
Final Exam	150	15%
Summaries (x4)	40	4%
Concept Reviews (x14)	70	7%
Preview/Review Qs	100	10%
Clicker Questions	40	4%
Lab section	300	30%
TOTAL	1000	100%

I calculate grades as a function of grade point average (GPA) where A=4.0 and D=1.0 (I will show you an example in class). Students find this method fair and equitable. **I give + and – grades** as follows:

4.0-3.8 = A	3.7-3.6 = A-	3.5-3.3 = B+	3.2-3.0 = B	2.9-2.6 = B-	2.5-2.3 = C+
2.2-2.0 = C	1.9-1.6 = C-	1.5-1.3 = D+	1.2-1.0 = D	0.9-below = F	
	CR = 1.6 or higher		NC = 1.5 or lower		

Important Dates: The last day to add the class is Sept. 6th; Census Date is Sept. 21st. Census Date is the last day to drop the course or change your grading option; it is your responsibility to submit the grade change form to Admissions and Records by 5pm that day. I strictly adhere to the grading option

Academic Records has on file for you when I submit final grades. **Unless it is to replace an incomplete or correct a mistake in my grading, I will not change grades once final grades have been submitted.**

Getting Help & Study Skills: The following suggestions may help you succeed in this and other classes. 1) **Read the assigned pages** before class and bring your questions to class. 2) **Attend class** and participate actively. 3) **Complete all assignments** and turn them in on time. 4) **Take notes** in a way that is helpful to you, even if you have to use a lot of paper. 5) **Join a study group!** Students who study in groups tend to do better than those that study alone. 6) **Study** for the exams well before the morning of the exam. 7) **Go to bed early** the night before and get up early the day of exams. 8) **Learn how you learn** and then stick with a style or process that is successful for you.

Deep learning takes time and is impossible to do in a single session before an exam. **Form a study group that meets regularly** so you can talk about new concepts and review terminology. When studying for exams, focus primarily on lecture notes, study guides, and the assigned text readings.

There is help on campus for students struggling with biology!

1. The **Commons**, located in 124 Naraghi Hall, is a free walk-in science and math tutoring center. With both student and faculty tutors available from 8am – 8pm Mondays-Thursdays and 8am – 5pm Fridays, there should be someone available to answer your questions.
2. The **Louis Stokes Alliance for Minority Participation (LSAMP)** in the sciences offers support in science and math for students who face or have faced social, educational or economic barriers to pursuing careers in science and math fields. Visit their website or office (Naraghi 376) for more information.
3. The **Biology Student Association** are 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.
4. **Tutoring Services** on the ground floor of the CSU Stan Library (L-112) has drop-in tutoring for biology; check their office or website for their schedule.
5. The **Advising Resource Center** (MSR 180).
6. **Student Support Services** (MSR 230).
7. **Program for Academic and Career Excellence (P.A.C.E.)** in MSR 245

Of course, I will work hard to help you in class and out. Come to office hours, communicate with me and let me know your frustrations and I will respond.

Tentative Lecture Schedule:

WEEK	DATE	TOPIC(S)	Read/Due:	Lab This Week
1	Aug. 24	Intros, how to succeed in this course (hang tough!)	Have textbook & clicker	None
	Aug. 26	How to learn in biology	Have textbook & clicker	
2	Aug. 29	The culture of science	Ch. 1.3	Scientific Investigation
	Aug. 31	Thinking like a scientist	Ch. 1.3	
	Sep. 2	Properties of life and the living cell	Ch. 1.1 – 1.2, Ch. 4.1 – 4.2	
3	Sep. 5	No class, Labor Day		Cells & Microscopes
	Sep. 7	Four main molecules	Ch. 3.1 – 3.6	
	Sep. 9	Three main organelles	Ch. 4.3, 4.5	
4	Sep. 12	Insane in the membrane	Chs. 3.4, 4.7, 5.1, 5.2, 5.6	Diffusion & Osmosis
	Sep. 14	Energy concept, pt. 1: what is energy?	Ch. 6.1, 6.3 Summary #1 due	
	Sep. 16	Transport, diffusion, osmosis	Ch. 5.3 – 5.5	
5	Sep. 19	Energy concept, pt. 2: energy barriers	Ch. 6.2, 6.4	Enzymatic Activity
	Sep. 21	MIDTERM #1	Preview/Review #1 due	
	Sep. 23	Entropy	Ch. 6.1 (again)	

6	Sep. 26	The nature of enzymes	Chs. 3.5, 6.4 – 6.5	Photosynthesis
	Sep. 28	Energy concept, pt. 3: The nature of light	Ch. 8.2 up to pg. 169	
	Sep. 30	Light reaction	Ch. 8.1 – 8.2	
7	Oct. 3	Dark reaction	Ch. 8.1, 8.3	Respiration
	Oct. 5	Energy concept, pt. 4: power foods	Ch. 7.1, 7.6	
	Oct. 7	Aerobic respiration	Ch. 7.1 – 7.4	
8	Oct. 10	Fermentation	Ch. 7.5	None
	Oct. 12	No class, non-instr. day		
	Oct. 14	DNA structure and function	Ch. 3.6 – 3.7 Summary #2 due	
9	Oct. 17	Basic mitosis	Ch. 9.1 – 9.3	Mitosis & Meiosis
	Oct. 19	MIDTERM #2	Preview/Review #2 due	
	Oct. 21	The problem of cancer	Chs. 9.3, 10.1 – 10.4, 16.3	
10	Oct. 24	Basic meiosis	Ch. 10.1 – 10.4	Genetics Problems
	Oct. 26	Mendelian genetics, the Punnett square concept	Ch. 11.1 – 11.2	
	Oct. 28	Exceptions to Mendelian genetics	Ch. 11.3	
11	Oct. 31	Special Topic: The Biological Basis of Monsters		Bioinformatics, Worms, Pipetting
	Nov. 2	BioSkills: what “significant” means		
	Nov. 4	BioSkills: chi-squared test		
12	Nov. 7	Pedigree charts and genetic counseling	Ch. 11.4 Summary #3 due	DNA Extraction & PCR
	Nov. 9	Proteomics & bioinformatics	Ch. 18.1 – 18.5	
	Nov. 11	No class, Veteran’s Day		
13	Nov. 14	Biotechnology, pt. 1	Ch. 16.1	Predator v. Prey, Gel electrophoresis
	Nov. 16	MIDTERM #3	Preview/Review #3 due	
	Nov. 18	Biotechnology, pt. 2	Ch. 16.2	
14	Nov. 21	Evidence for evolution	Chs. 1.2, 18.6, 19.1 – 19.3	None
	Nov. 23	Evidence for evolution	Chs. 1.2, 18.6, 19.1 – 19.3	
	Nov. 25	No class, Thanksgiving		
15	Nov. 28	Population genetics	Ch. 21.1 – 21.2	Population Genetics & Evolution
	Nov. 30	Population genetics	Ch. 21.3 – 21.4	
	Dec. 2	BioSkills: Hardy-Weinberg equation		
16	Dec. 5	How species evolve	Ch. 22.1 - 22.4	Lab practical exam
	Dec. 7	How species evolve	Ch. 23.1 – 23.4	
	Dec. 9	BioSkills: the half-life concept	Summary #4 due	
17	Dec. 12	Review	Preview/Review #4 due	None
	Dec. 14	Finals		
	Dec. 16	FINAL EXAM → 8:30 – 10:30am, Naraghi 101		

