



## Biology 1050: General Biology I (TR, Fall 2019)

**Instructor:** Dr. Laurissa Hamilton

**Office:** N-257      **Office Hours:** Monday noon – 2pm, and by appointment

**Contact Information:** my office or after class (*best*) or lhamilton@csustan.edu (*good*) or (209) 667-3489 (*worst*)

**CRN:** 40162; **Section:** 005

**Texts & Materials:** All required and recommended materials are available in the campus bookstore. You may be able to find the same books for better prices by using online sources.

### 1. Loose-leaf Campbell Biology in Focus, 2nd edition by Urray et al., ISBN 9780134203140

- Students who bring the book to class follow along better. Please purchase a loose-leaf copy of this text.
- I selected this text as the primary book for this course because it is comprehensive without excessive detail, relatively easy to read, has excellent figures, is a standard in the field, and has good online resources.
- You will use this book in General Biology 2, as well, so you will get a good return on your investment.

### 2. The i>Clicker is **required** for this course. Any version of iclicker will work, *except* for the smart app.

- Using clickers in class helps to make lecture more interactive. It keeps you awake, allows you to earn participation points, and it helps me to gauge how well the class understands my presentation.
- Register your iClicker at <https://www.iclicker.com/register-a-remote> right away. We will use “iclicker classic” software and the “Blackboard Learning Management System.” Be sure to enter your Blackboard username (e.g. this is the same as your email login, for example, in my case it would be “lhamilton”) as the Student ID.
- You *can* purchase a used iClicker and re-register it under your own name. Please do not pay extra to register a used clicker. We can do this for free in class.

### 3. You will need to use the **Blackboard course site** for this class.

- Go to <http://my.csustan.edu> and click on the “Blackboard” link on the left side of the page.
- Login and enter the Biology 1050-005 course site to find course content. Note that you have a separate course page for your lab class (your lab instructor may or may not use this page).
- There are many student computer labs available on campus; *you do not need to own a computer.*

### 4. **Biology 1050 Lab Manual** available only in the campus bookstore (ISBN 9781269663267)

#### COURSE DESCRIPTION AND OBJECTIVES

##### **Course Requirements**

Prerequisite: Grade of A or B in high school biology, satisfactory score on biology qualifying examination, or BIOL 1010. Co-requisite: You must enroll in an associated lab section (Tues or Thurs, 2 – 4:50pm, or Friday at 9am).

##### **Purpose of Course**

The purpose of the introductory series is twofold: (1) to introduce students to the breadth of the biological sciences and (2) to help beginning biology majors master the fundamental facts and theories needed for success in subsequent courses.

This course is the first in the two-course series and will focus on cellular and molecular biology, genetics, and microevolution. Learning objectives and GE Goals will be met through a combination of Lecture (LE) & Lab (LA) experiences. **A grade of C- or better is required to move forward into General Biology 2 (BIOL 1150).**

##### **Course Objectives**

Students will be introduced to foundational principles in biology:

1. All living things come 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.

### **Learning Objectives**

Successful students will be able to:

- " Describe the properties that unite the three domains of living things. (LE)
- " Identify relationships between structure and function at all levels of biological study. (LE, LA)
- " Describe the major groups of biological macromolecules and explain their importance of each to cellular structures and functions. (LE)
- " Identify structures of prokaryotic and eukaryotic cells and explain the functions they perform. (LE, LA)
- " Describe how the cell integrates into the hierarchical organization of living systems. (LE)
- " Explain how and why cells communicate to coordinate their activities. (LE)
- " Explain how energy and materials flow within and between cells, and between cells and the environment. (LE, LA)
- " Identify the processes by which the cell obtains and produces needed resources. (LE, LA)
- " Explain the stages in the cell's life cycle in single celled and multicellular organisms, including growth, cell reproduction, and apoptosis. (LE, LA)
- " Describe the process by which cells pass on genetic information to their offspring and explain how sexual reproduction results in genetic diversity. (LE, LA)
- " Describe how genes encode information and explain how this results in the structure and function of organisms. (LE)
- " Identify the processes that result in changes in genomes, resulting in unique individuals, populations and species. (LE, LA)
- " Explain the scientific method and describe specific techniques used to scientifically study living things. (LE, LA)

Students will also:

- Practice self-assessment and reflection while developing the necessary study skills for success in science coursework. (LE, LA)
- " Practice using the process of scientific inquiry as a means of understanding the natural world. (LE, LA)
- " Make connections between the factual information provided by science and the relevance of biology to broader societal issues. (LE, LA)
- " Demonstrate a professional and respectful manner when communicating and working with peers, instructors, and staff, as practice for success in the workplace and community. (LE, LA)

### **Assessment Methods, Grades, and Grading**

The most practical assessment measure for content-heavy courses is the objective exam. Most of your grade for the lecture portion of the course will be based on lecture exams. Participation points will be available daily in lecture, through participation with your iclicker and potentially via content related worksheets. Questions may include pre-test exam questions, comprehension questions, and summary/review questions. Thus, you have the opportunity to earn participation points through the entire class period. There may be opportunities to gain a few points of extra credit in lecture and lab. Lab points are added to lecture points to calculate your total grade in the course. I do not use a curve. Notice: there is a CR/NC (Credit/No Credit) option.

Grade Calculations: Grades are based on the percentage of points earned (rounded to the nearest 0.1%) and will be assigned as follows:

		B+	87-89%	C	70-79%
A	93-100%	B	83-86%	D	60-69%
A-	90-92%	B-	80-82%	F	0-59%

If you take the credit/no credit option: CR 70-100%; NC 0-69%

#### Lecture Grades

Midterm exams (4 x 100 pts each)	400
Final exam	160
Participation (iclicker / assignments)	~100
Total	~660

Lecture points will be multiplied by a factor (likely ~1.136), to scale the potential lecture total to 750

Lecture total points ~660 x ~1.136	750 (75%)
Lab total points	250 (25%)
Total	1,000

If given, any supplemental or extra credit assignment must be turned in on the day and time it is due. Under normal circumstances, if offered, no extra credit will be accepted after the due date.

The last day to apply for the CR/NC grading option is Tuesday, Dec. 10th. To do so you must contact me in person and have your form filled out and ready for me to sign. It is your responsibility to turn this form in to Enrollment Services. I will follow the grading option indicated on the final grade sheet supplied by Enrollment Services. Consult with your advisor before making your decision. Once you have selected the CR/NC option you cannot opt for a grade. **No grades will be changed once they have been submitted to the registrar.** The last day to drop the class is Thursday, Sept. 19<sup>th</sup>.

### **Expectations of Students**

- **Be respectful of others** by arriving on time, giving your attention to whoever is presenting, listening to the ideas of your classmates, turning off cell phones, and generally being polite. This also means no text-messaging (yes, the person at the front of the room *can* tell what you are doing) and no internet surfing (it's distracting to those sitting around you). **If you use a laptop computer in class it must be used only for purposes relevant to the course and you must sit in the first row.** A first time violation will result in a 10-point deduction from your grade. A second violation will result in 30-points deducted from your grade and you will no longer be allowed to use a laptop in the class. During in-class group assignments each member of a group should fully participate and contribute.
- **Engage the course material** through participation in class, reading the text, and thinking about biology outside of class.
- Students are expected to **take exams** during the scheduled dates and times. Requests for early exams must be submitted in writing to the instructor at least **one week** prior to the scheduled exam. **No makeup exams will be given after an exam has been returned to the class; any unexcused missed exams without a proper written and verifiable excuse will be recorded as a zero.** If you miss an exam for a legitimate emergency it is your responsibility to notify the instructor immediately. **If provided, makeup exams will be different from regular exams, may include essay and short answer questions, and only will be allowed for a valid documented emergency absence (e.g. a doctors note, signed on the date of the exam).** These must be completed as soon as possible and no later than within one week of the originally scheduled day of the exam. It is the responsibility of the student to contact the instructor and make arrangements to take the test within the allowed time.
- **Maintain your academic integrity.** *Your integrity is your most valuable asset as a student* and in your future career as an educated person. In line with this, it is the policy of the Department of Biological Sciences that anyone caught *cheating* or *plagiarizing* will receive a grade of F for the course. I reserve the right to request any student suspected of cheating to take a second, different exam on the material. Protect yourself by making your integrity obvious.

### **Expectations of the Instructor**

- Same as those for students, in terms of engagement in the course, respect for participants, and observation of lab safety procedures. *I do my best to protect your privacy and to maintain an environment in which you can learn.*
- Be **open to feedback** on the course and be flexible in order to make appropriate changes to meet student needs.
- Be **fair and consistent in assessment** of student learning.
- Be **available to students** outside of class time to answer questions and discuss class material.

### **How you Earn your Grade in Lecture**

**Exams:** There will be five (5) exams during the semester. The first four (4) exams will be worth approximately 100 points each (the comprehensive final is worth ~160 points) and will consist of multiple choice, fill in the blank, true/false and matching questions (matching can include labeling diagrams) to be answered on a Scantron (bring a Scantron form 882-E and pencil). **The final exam must be taken during the scheduled time** – please do not request to take the exam early due to vacations, graduations, work etc.; the final is scheduled for **all** enrolled students on **Dec. 17th** – please plan accordingly. There may also be approximately one page (front and back) of short answer/identify a picture from the text/label-a-process questions. Questions will cover material from lecture. If you are late to an exam, then you will have less time to complete the exam so plan your schedule accordingly. **Traffic, oversleeping, and/or car problems are not acceptable excuses for being late.** During exams, cell phones must be turned off and hats must be removed. If your cell phone rings during an exam five (5) points will be deducted from your score. Students who arrive after the first exam of the day has been turned in will not be allowed to take the exam. **No** food, drinks, **smartwatches**, or headphones are allowed during the exam period. You must not leave the room during an exam without the instructor's permission. **You have one week following return of any exam or assignment to meet with me to work out any reasonable changes in grading.**

To dispute the scoring of an assignment, bring the assignment and supporting information showing why you deserved a different grade to my office, where we can discuss the issue privately.

The instructor reserves the right to give additional unannounced quizzes if it becomes apparent that students are not keeping up with the material and/or there are an unacceptable number of absences. If you happen to be absent that day or you fail to follow instructions, you will receive a grade of 0 for that quiz.

**In-class Assignments (~50 - 100 points):** Depending on timing, there will be various in-class group assignments throughout the semester. Each assignment will be worth 10 points; one day's assignments will not total more than 20 points. **In-class assignments are supplemental \*group\* activities so there are no make-ups on these assignments, but students can drop their one lowest assignment score.** These assignments are important because they provide opportunities for cooperative learning and give time for you to discuss new concepts and terminology with your peers. Students who are present generally do very well on in-class assignments. Because these are **group** activities, 4 points will be deducted from groups consisting of more or less than 3 or 4 individuals, unless prior approval has been arranged.

**Audio\Video Recording:** Recording of lectures is not permitted without written consent from your instructor.

#### *Tips for learning the material*

In my experience, many bright students are simply not challenged during high school. As a result, these smart and capable people haven't had the opportunity to develop the study skills needed for success in the university. Don't let the first exam catch you by surprise. This course is content-heavy, and you will **not be able to cram** with much success for the exams. **Make your study time a daily habit.** I encourage you to study the material more deeply than we cover in class, in order to perform well at the level of the test.

- Skim the whole chapter before you come to class. Carefully read and interpret the figures and tables and carefully read each vocabulary term.
- Be early to class for special study tips, sneak previews for lab, and to engage with your instructor
- Watch any assigned videos before coming to class. These will give you a preview of the day's material.
- Take notes in class based on what you hear. Do not spend the class period copying every word off my slides. These same words can be found in your text.
- After class review your notes. Go back and read the textbook to fill in gaps in your understanding. **Some students have been very successful by copying out their notes onto flashcards for study.**
- After class, write 7-10 exam questions for the material. This will give you a study sheet for before the exam.
- When you study, don't fool yourself! When you page through the textbook, everything will look familiar. This doesn't mean that you personally own the knowledge yourself. Make it yours! After each class day, without looking at your notes or the book, write down a list of the topics and subtopics covered. Write down key words and their definitions. Make your best sketch of the figures/illustrations presented. After this, open your text and see how well you did. The parts you missed entirely are the parts you need most to study, the parts you partially remembered also need some attention. The parts you know perfectly are part of your own knowledge set.
- **You need to study the material more deeply in the text than is covered in lecture, in order to be able to readily answer questions on the exams.**
- **Every lab point can count in your favor**, or against you. Make sure performing well in lab is part of your plan for success

#### **Participation**

You will use your clicker to respond to in-class questions. This helps me gauge your level of comprehension and will help me with the pacing of the material. It also allows me to reward you for being dedicated in your lecture attendance. I know things come up, and you might miss a day or two of class; don't worry, *it will be safe to miss 2 days without penalty.* Hint: put **three** spare batteries in your backpack in case your i>Clicker fails

**You must be present to earn participation points.**

**Asking another student to click for you OR clicking for someone else is *obviously cheating*.**

**Anyone using more than one clicker will receive an F for the course.**

Course Component / Date	Possible Pts
Exam 1 (Sept 17; Ch. 1-4)	100
Exam 2 (Oct 17; Ch. 5-8)	100
Exam 3 (Nov 14; Ch. 9-12)	100
Exam 4 (Dec 5; Ch. 13, 14, 19, 20)	100
Exam 5 (Comprehensive; Dec 17)	160
Participation (clickers / assignments)	~100
Lab	250

**(\*Chapters listed above are tentative)**

**Tentative Course Outline (We will cover these in order)**

*(Subject to Change)*

Lecture Schedule	
Chapter #	Biology In Focus
1	Introduction/Science
2	Chemical Context of Life
3	Carbon & the Molecular Diversity of Life
4	A Tour of the Cell
5	Membrane Transport & Cell Signaling
6	Intro to Metabolism
7	Cellular Respiration & Fermentation
8	Photosynthesis
9	The Cell Cycle
10	Meiosis & Sexual Life Cycles
11	Mendel & the Gene Idea
12	Chromosomal Basis of Inheritance
13	Molecular Basis of Inheritance
14	Gene Expression: From Gene to Protein
19	Descent with Modification
21	The Evolution of Populations

*The schedule and procedures in this course are subject to change in the event of extenuating circumstances*

**HOLIDAYS (NO CLASS):**

**TUESDAY, OCT. 8**

**THURSDAY, NOV. 28**

**LAST CLASS MEETING: TUESDAY, DEC. 10, 2019**

**TUTORING ON CAMPUS** – Free tutoring services are available to assist you in most disciplines, including in biology! Library 112; Phone (209) 667-3642; Web <http://www.csustan.edu/Tutoring>

**CAMPUS COUNSELING SERVICES** – Overwhelmed by the stress of juggling classes and your home life? Our campus offers **excellent** counseling services to help support you! MSR 210; Phone (209) 667-3381; Web <http://www.csustan.edu/Counseling/>

**STUDENT HEALTH CENTER** – You have already paid for access to health care on campus. Services include: birth control, flu shots, immunizations, pharmacy, check-ups, HIV testing, TB tests, and doctor's notes for when you are sick. Phone (209) 667-3396; Web: <http://healthcenter.csustan.edu>