Biology 101, Section 23: Elements of Biology (3 units)

Location: MH-121
Meeting Times: Monday & Wednesday 2:30 – 3:45 pm

Instructor: Dr. Carol Chaffee
E-mail: cchaffee@fullerton.edu
Phone: (657) 278-7098
Office: McCarty Hall 207H
Office hours: (or by appointment)
  M 1–2 PM
  W 11 AM – 12:30 PM
  Th 1:30–2:30 PM

Technical support (Help Desk): (657) 278-8888 or StudentITHelpDesk@fullerton.edu.

COURSE COMMUNICATION

• All course announcements are sent through TITANium, which only uses CSUF email accounts. Therefore, you must check your CSUF email on a regular basis (several times a week) for the duration of the course.

• Email is the absolute best way to reach me, and is essentially the only way to reach me on weekends or holidays. I have an email filter setup to highlight emails from students in my classes, so you will get the fastest response if you start the subject line of each message with “BIOL 101:”.

• Please make sure to include your name in the body of all emails.

• If you leave me a voice mail (once my office phone is available), please make sure to include your name, a call back number, and the best times to call.

RESPONSE TIME
I will make every effort to respond to email or voice mail within 24 hours during the week, and will usually be able to respond within 48 hours over weekends or holidays. If I’ll be unavailable at any time during the semester (unlikely), I will send a message through TITANium with instructions for getting assistance from alternate sources.
COURSE DESCRIPTION, OBJECTIVES & LEARNING GOALS

Biology 101 is a General Education course in the B.2 Life Science area. The goals of this course are that students will learn the following major scientific ideas:

a. **Living things are made of smaller structures whose functions enable the organism to survive.**

   **Biology 101 students should be able to:**
   1. Define the characteristics of life
   2. Differentiate between the main classes of biologically important molecules
   3. Summarize cell theory
   4. Explain the processes associated with cell growth & division
   5. Compare & contrast characteristics of prokaryotic & eukaryotic cells
   6. Relate cell structure to cell function
   7. Explain how an organism maintains homeostasis
   8. Organize functions within levels and explain relationships between levels of biological organization (cell, tissue, organ, organ system, organism)

b. **Living things depend on each other and the physical environment as they interact to obtain, change, and exchange matter and energy.**

   **Biology 101 students should be able to:**
   1. Describe how energy from the sun drives most activities on the earth’s surface
   2. Sketch the flow of energy & matter through higher levels of biological organization
   3. Explain the ways in which organisms may interact
   4. Identify factors that affect population growth and decline
   5. Identify factors that affect ecological organization at the community & ecosystem level
   6. Assess the role of humans in natural systems
   7. Describe & give examples of the value of biodiversity & the natural world

c. **The great diversity of living things is the result of billions of years of evolution of organisms through the mechanisms of heredity, random change, and natural selection.**

   **Biology 101 students should be able to:**
   1. Illustrate the Central Dogma
   2. Explain & apply the basic principles of inheritance
   3. Summarize the evidence for evolution
   4. Describe how different processes (e.g., mutation, genetic drift, selection) can lead to genetic differentiation and speciation
5. Define and explain natural selection
6. Interpret evolutionary relationship among organisms
7. Explain how evolutionary principles & ideas influence daily lives (e.g., GMOs, vaccination, antibiotic resistance, AIDS)

d. In addition to the above goals, Biology 101 students should gain an appreciation and basic understanding of the scientific process.

**Biology 101 students should demonstrate competency in the following skills:**
1. Retrieve information from a variety of sources (e.g., popular press, scientific papers)
2. Apply the scientific method
3. Critically evaluate data accurately (e.g., graphs, tables, text)
4. Critically evaluate claims rather than accept authoritative statements
5. Recognize the historical context of science
6. Differentiate between science and non-science
7. Analyze societal issues based on biologically sound principles
8. Justify opinions on social issues related to biology (e.g., stem cells, GMOs, vaccination)

**REQUIRED TEXTS**
- The bookstore has multiple options (both electronic and physical) available at a range of price points.
- LaunchPad access comes bundled with many options, but it is NOT required for this section.
- For those of you that have access to the Second Edition, most of the material is the same, although some differences in pages, sections, and chapters exists. If you decide to use the Second Edition, you are responsible for identifying these differences by comparing the two editions.
GRADING STANDARDS, AND CRITERIA

In this course the plus/minus system will be used.

The grade breakdown is as follows. Please note that the percentages corresponding to each letter grade have been “pre-curved”. Except as described below for exams, no additional adjustments to this grading scale will be made.

≥ 96% = A+
≥ 92% = A (outstanding performance)
≥ 88% = A-
≥ 84% = B+
≥ 80% = B (good performance)
≥ 76% = B-
≥ 72% = C+
≥ 68% = C (acceptable performance)
≥ 64% = C-
≥ 60% = D+
≥ 56% = D (Minimum grade necessary to fulfill B.2 GE requirement)
≥ 52% = D-
< 52% = F

Keep all assignments returned to you so that any discrepancies can be easily and fairly straightened out. Except in cases of actual error, all grades are final.

All grading is done in ½ point increments. Therefore, any percentage penalties assessed will be rounded to the nearest ½ point.

Exams will be retained, and may be reviewed in my office.

Except for extraordinary circumstances, homework assignments and exams will be graded within two weeks. Completion of in-class assignments will be recorded within one week.

For exams ONLY, if the class mean score is below a C (68%), then scores will be adjusted by adding points to bring the mean to 68%. If the class mean is 68% or higher, no adjustments will be made. If your score ends up >100% after adjustments, then you will receive extra credit points for the excess. For example, if the exam is worth 90 points, and you have 93 points after scores are adjusted, you will receive 3 extra credit points.

Attendance Policy

Although attendance is not required, it is strongly encouraged, and students who attend class regularly do better than those that do not attend regularly. Nearly every class period will include at least one in-class assignment (described below under “ASSIGNMENT DESCRIPTIONS”), and there will be no makeup for these assignments.

Late Assignments

Except when indicated otherwise in the assignment instructions, late assignments will be accepted up to one week after the original due date, but will be reduced 10% each day after the assignment due date (up to 50%) unless approval for late work is given in
advance. Late assignments will only be accepted up to one week after the original due date.

**Extra Credit Policy**

There are four ways to earn extra credit: (1) by submitting questions via the course forum on TITANium, as described below under “Extra Credit”, or (2) earning a score >100% on an exam after adjustments are made as described below under “Exams”, or (3) completing the “Learning Styles” questionnaire, or (4) coming to chat with Dr. Chaffee at least once, as described below under “Extra Credit”. To ensure that all students in the course have an equal opportunity to earn points, special extra credit assignments will NOT be offered.

**ASSIGNMENT DESCRIPTIONS**

**Exams (15% + 10% + 20% + 10% = 55%)**

There will be four exams given to assess your progress toward meeting the learning objectives described above. Exams will be a mix of true/false (very few of these, at most one on an exam), multiple-choice (some of these, generally about 3 questions per exam), fill in the blank, and short answer questions. Exams are scheduled at the conclusion of key topics, so the amount of material covered by each exam varies. Thus, exams 1 and 3 are worth more than exams 2 and 4. After the first exam, subsequent exams will focus primarily on material covered since the previous exam, but they will include some application and synthesis questions that will require you to integrate knowledge from earlier in the semester.

Exam topics will be pulled from material discussed in class, the textbook, and homework assignments. Each class period will start off with a summary of the learning objectives for the day. Together, the learning objectives comprise a study guide for the exam, and no additional study guide will be provided. The best way to review your notes when studying for an exam is to ask yourself if you feel you’ve met the objectives, and focus your study efforts on those areas where you don’t yet meet the objectives. Study pairs or groups are outstanding ways to help you evaluate your knowledge.

It is extremely important to be on time for exams. Late arrival not only reduces the amount of time you have to work on an exam, but it disturbs all of your classmates who arrived on time. Please respect your fellow students by ensuring that you are ready to start each exam on time.

Unless special arrangements are made through the Disability Support Services (DSS) Office (see below under “Students with Special Needs”), no additional materials may be used during an exam. This includes (but is not limited to) calculators, cell phones, tablets, laptops, textbooks, notebooks, etc. Basically, if it’s not a writing implement or the exam paper, it needs to be shut, silenced, and put where it cannot be accessed or seen. Any violations will have the materials confiscated for the duration of the exam, and the incident reported as cheating (see below under “Academic Dishonesty Policy”).
If you must miss an exam, make-ups are offered, at my discretion, only under certain circumstances, with written documentation provided. All make-up exams are given in the Biology Office, MH-282, and will ONLY be administered if you can present photo ID.

- You make arrangements with me at least one week prior to the scheduled exam due to important, unavoidable conflicting activities (e.g., non-elective surgery, jury duty, officially representing CSUF at conferences, a member of a CSUF athletic team).

- Severe illness, personal tragedy, or unavoidable emergencies. Contact me ASAP if one of these unfortunate situations occurs, but please notify me within 24 hours of the exam, even if it’s just a simple one-line email letting me know you’ve had an emergency, and need to discuss the exam.

- Neither vacations nor work schedules are valid excuses for missing an exam. All exams (including the final exam) are offered during our normal class times, so please plan accordingly.

- Absolutely ALL make-up exams must be completed within two weeks of original exam date.

- Failure to follow the guidelines above will result in a zero grade for the exam.

**Final Exam (OPTIONAL)**

The final exam will be cumulative, and is optional. Students who elect to take the final will have their score on the final replace their lowest score on Exam 1, 2, 3, or 4. If the final exam score is lower than all four of these scores, then the final will be ignored. In other words, your score on the final can only HELP you, it cannot hurt you. All grading will be completed, and grades will be posted to TITANium no later than the Tuesday of finals week, May 17, 2016, so that you will know your grade in the course prior to the day of the final. If you are happy with your grade, you may skip the final.

**Writing Assignments (20%)**

To meet the General Education writing requirement, you will complete four writing assignments of about 250 words each, for a total of 1,000 words. We’ll be discussing more details of these assignments, and you’ll be provided the grading rubrics to guide you.

It is crucial that you understand that all writing assignments must be your own work, and written in your own words. I really don’t want to report anyone for academic dishonesty (see below under “Academic Dishonesty Policy”), so please don’t plagiarize. The consequences can be severe, and the reward is miniscule. If you are confused about what constitutes plagiarism, please come see me before submitting your assignment. It’s a much more unpleasant conversation for both of us if we have to talk after you’ve already submitted something plagiarized.
Homework (15%)

Homework assignments and quizzes will be assigned at various points throughout the semester. Details for each assignment will be provided both in-class, and on TITANium at least one week (usually more) prior to the due date. Make-up assignments are only permitted, at my discretion, in cases of emergencies, or illness, and written documentation must be provided to be considered for a make-up.

In-class Assignments (10%)

Nearly every class session will include at least one in-class assignment. These assignments may include brief writing reflections, group discussions, questionnaires, etc. Although you will be asked to turn in something to indicate your participation, most of these assignments will not be graded, and credit will be given solely for completion. Absolutely NO makeup assignments are given for in-class work. At the end of the semester, a random number (somewhere between 85-95%) of these assignments will be selected to include in the course grade, so missing one or two assignments will not affect your final grade.

Extra Credit: Asking Questions

A major element of science is asking questions, so you have the opportunity to earn up to eight extra credit points by posting questions to the course forum on TITANium. These questions may be about any topic of biological relevance.

• One point per thoughtful question. If you think I may question the biological relevance, then your post must include your reasoning for why you believe it to be relevant.

• Questions about items in the syllabus (my office hours, date/time of exams, points for an assignment, etc.) will not receive credit.

• Up to two questions may be posted for credit for each segment of the course, as defined by the exams. For example, you may post two questions prior to Exam 1, two after Exam 1, but before Exam 2, and two after Exam 2.

• To receive credit for a course segment, questions must be posted prior to the start of the class period in which an exam is given. In other words, if you post a question 10 minutes after you finish taking Exam 1, that question applies to the Exam 2 segment.

• I will post answers to all questions on the course forum on TITANium (sometimes the answer may be “check the syllabus”).

Extra Credit: Chat with Dr. Chaffee

One of the awesome things about teaching Biology 101 is that all of you have such varied interests. I love getting to know you as people, rather than just students! In addition, students that come talk with me tend to earn better grades, so I want to encourage you to come see me. You do NOT have to have a problem or a question, you just need to come chat with me for at least 10 minutes or so (you are welcome to
come with problems, or questions, and we can chat for as long as you’d like). To earn 2 points of extra credit for coming to see me, you must come to office hours (or schedule another time to come see me, if you can’t make it to the regular office hours) BEFORE Exam 1 (February 22).

**Extra Credit: Learning Styles**

Everyone earns in different ways, and we all have strengths and weaknesses in our learning styles. The online questionnaire, *Index of Learning Styles Questionnaire*, is designed to provide you with some insights into your learning styles. After answering these questions, you will receive a *Learning Styles Results* summary that shows where you fall along a scale of various learning preferences. Additionally, the site provides a link to some helpful information about what it means to have a preference for one style of learning versus another. This information could be very useful as you study and prepare for exams.

Because knowing more about how you learn is a great way to understand what types of study activities will be most helpful for you, you may earn 4 extra credit points by completing this questionnaire. Complete instructions are given under the “Extra Credit: Learning Styles” heading in TITANium.

Dr. Casem & Dr. Chaffee are currently running a study to compare how students with different learning style profiles perform in introductory biology classes. If you are over 18 & wish to participate in this study, you may submit your results for inclusion in this study, but **inclusion in the study is ABSOLUTELY NOT REQUIRED to receive extra credit.** The instructions on TITANium describe how to participate in the study, as well as how to receive extra credit without being included in the study. Under no circumstances will either Dr. Casem or Dr. Chaffee have any access to the detailed answers you provide on the questionnaire. They will only have access to the results summary, if you choose to be included in the study.

**ALTERNATIVE PROCEDURE FOR SUBMITTING WORK**

In case of technical difficulties with TITANium, I will communicate with students directly through CSUF email, and assignments can be submitted through email, brought to office hours, or turned in to the Department of Biological Science office in MH-282.

**POLICY ON RETENTION OF STUDENT WORK**

Work submitted through the TITANium course site shall be retained on the course website for a reasonable time after the semester is completed. In-class assignments that are submitted solely for completion will not be returned, but will be retained in my office. Please come see me during office hours if you wish to collect any of these assignments. As described above, exams will be retained in my office, and can be viewed during office hours, or by making special arrangements with me.

**TECHNICAL REQUIREMENTS**

Students are expected to

1. Have basic computer competency which includes:
a. the ability to use a personal computer to locate, create, move, copy, delete, name, rename, and save files and folders on hard drives and on secondary storage devices such as floppy disks;
b. the ability to use a word processing program to create, edit, format, store, retrieve, and print documents;
c. the ability to use an electronic mail system to receive, create, edit, print, save, and send an e-mail message with and without an attached file; and
d. the ability to use an Internet browser to search the World Wide Web.

2. Have ongoing reliable access to a computer with Internet connectivity for regular course assignments

3. Use Microsoft® Office 2013 (for PC) or 2011 (for Mac) including Word, PowerPoint, and Excel to learn content and communicate with colleagues and faculty; have the ability to regularly print assignments

4. Maintain and regularly access a student email account

5. Use Internet search and retrieval skills to complete assignments

6. Use TITANium to access course materials and complete assignments

UNIVERSITY INFORMATION

Software for Students

Did you know you can get FREE and low-cost software for being an active CSUF students? Software can be requested from the CSUF Student Technology Services website.

TITANium

As a registered student you are enrolled in TITANium. You may access TITANium for all your classes by clicking on your student portal, found on the CSUF website. There is a short video explaining TITANium access. Problems? Contact the student help desk at (657) 278-8888 or email StudentITHelpDesk@fullerton.edu.

Students with Special Needs

Please inform me during the first week of classes about any disability or special needs that you may have that may require specific arrangements. According to California State University policy, students with disabilities must document their disabilities at the Disability Support Services (DSS) Office in order to be accommodated in their courses. Additional information can be found at the DSS website , by calling 657-278-3112 or email dsservices@fullerton.edu.

Academic Dishonesty Policy

Academic dishonesty includes such things cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show a possession of a level of knowledge or skill, which he/she in fact does not possess. Cheating is defined as the act of obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means. Plagiarism is defined as the act of taking the work of another and offering it as one’s own without giving credit to that source. An instructor who believes that an act of academic dishonesty has occurred (1) is obligated to discuss the matter with the student(s) involved; (2) should possess reasonable evidence
such as documents or personal observation; and (3) may take whatever action (subject to student appeal) he/she deems appropriate, ranging from an oral reprimand to an F in the course. Additional information on this policy is available from University Policy Statement 300.021 found at the UPS section of the Academic Senate website.

**Emergency Contact**

In the event of emergency, contact the University Police at (657) 278-3333. Additional information can be found at the CSUF Emergency Preparedness website.

**Library Support**

The Pollak Library has many services to offer students, and the librarians will be happy to guide your efforts as you work on gathering sources for your research paper.

**University Learning Center**

The goal of the University Learning Center is to provide all CSUF students with academic support in an inviting and contemporary environment. The staff of the University Learning Center is carefully selected and trained to assist students with their academic assignments, general study skills, and computer user needs. The ULC is located in the Pollack Library North, 2nd Floor. The services that the ULC provide to the CSUF students include an open computer lab, tutoring, workshops, online tutoring, and collaborative learning. The online tutoring option allows students to submit their paper for constructive feedback. More information can be found on the University Learning Center website.

**Writing Center**

The Writing Center offers all registered CSUF students the opportunity to receive writing assistance. In half hour long tutorials, the students who come to the Writing Center will work with a tutor to create and/or improve specific assignments and, more importantly, to improve their overall writing skills. Students can expect to engage in conversation about their assigned topics, the point or thesis of their writing, ways to organize and develop ideas, or how to improve sentence structure and mechanics so as to convey the intended meaning of the essay. The Writing Center is located in MH 45, the basement of McCarthy Hall, on the campus of California State University, Fullerton; 657-278-3650. More information can be found on the Writing Center webpage.
Biography 101, Section 23: Elements of Biology (3 units)

Location: MH-121

Meeting Times: Monday & Wednesday 2:30 – 3:45 PM

COURSE SCHEDULE

• Unless otherwise indicated, all assignments are due in TITANium prior to the start of class (2:30 PM) on the due date.

• Dates for topics & readings should be considered tentative, and may be adjusted if necessary to ensure the class is meeting the course learning objectives. Any alterations to the schedule will be announced in class & posted to the News Forum on TITANium.

Week 1

January 25
  Introduction
  Scientific Thinking
  Reading: Chapter 1 (1.1-1.10, 1.15-1.18)

January 27
  Life on Earth
  Reading: Chapter 10 (10.1-10.10, 10.15-10.18), 13.16

Week 2

February 1
  Animal Diversity
  Reading: Chapter 11 (11.1-11.12)
  Homework: Syllabus Quiz

February 3
  Animal Diversity
  Reading: Chapter 11 (11.13-11.18)
  Writing Assignment: Plagiarism Quiz

Week 3

February 8
  Fungal Diversity
  Microbial Diversity
  Plant Diversity
  Extra Credit: Learning Styles Questionnaire
February 10
Evolution
**Reading:** Chapter 8 (8.1, 8.4, 8.5, 8.10)
**Writing Assignment:** Paragraph 1

**Week 4**

February 15
Mechanisms of Evolution
**Reading:** Chapter 8 (8.6-8.9, 8.11-8.15)
**Homework:** Biodiversity & Evolution

February 17
Evidence for Evolution
**Reading:** Chapter 8 (8.18-8.22)

**Week 5**

February 22
EXAM 1 (Scientific Thinking, Biodiversity & Evolution)

February 24
Populations
**Reading:** Chapter 14 (14.1-14.10)

**Week 6**

February 29
Communities
**Reading:** Chapter 15 (15.9-15.17)

March 2
Ecosystems
**Reading:** Chapter 4 (4.1, 4.3-4.6, 4.12), 15 (15.1-15.8), 17 (17.9-17.11)
**Writing Assignment:** Paragraph 2

**Week 7**

March 7
Conservation
**Reading:** Chapter 16
**Homework:** Ecology

March 9
Chemistry of Biology (NOT ON EXAM 2)
**Reading:** Chapter 2, 24 (24.1-24.3, 24.11-24.12)
**Writing Assignment:** Paragraph 2 Reviews

**Week 8**

March 14
EXAM 2 (Ecology)
March 16

Cells

Reading: Chapter 3 (3.1-3.5, 3.7-3.15, 3.20, 3.22)

Week 9

March 21
Cell Division
Reading: Chapter 6 (6.3-6.6, 6.9-6.12)
Writing Assignment: Paragraph 3

March 23
DNA
Reading: Chapter 5 (5.1-5.5), 6 (6.2, 6.14-6.16, 6.17-18)
Homework: Cells

Week 10

March 28 & 30  SPRING BREAK – NO CLASS

Week 11

April 4
Gene Expression
Reading: Chapter 5 (5.6-5.11)

April 6
Stem Cells
Biotechnology
Cancer
Reading: Chapter 5 (5.12-5.17), 6 (6.1, 6.8)
Writing Assignment: Paragraph 3 Reviews

Week 12

April 11
Inheritance
Reading: Chapter 7 (7.1-7.8)

April 13
Inheritance
Reading: Chapter 7 (7.9-7.17)
Homework: Genetics
Writing Assignment: Paragraph 4 (Friday, April 15, 5:00 PM)

Week 13

April 18
EXAM 3 (Cells & Genetics)

April 20
Plant Physiology
Reading: Chapter 17 (17.1-17.7, 17.12-14), 19 (19.1-19.3)
Week 14

April 25
Plant Reproduction

**Reading:** Chapter 12 (12.9-12.10), 18 (18.1-18.13), 19 (19.5-19.7)

**Homework:** Plant Physiology

April 27
Animal Physiology

**Reading:** Chapter 20

Week 15

May 2
Key Animal Organ Systems

**Reading:** Chapter 21, 22, 23, 26 (skim all chapters & focus on figures)

**Writing Assignment:** FINAL PAPER

May 4
Animal Reproduction

*** Last In-class Assignment ***

**Reading:** Chapter 25

**Homework:** Animal Physiology

Week 16

May 9
EXAM 4 (Physiology)

May 11
Cumulative Review for Final

Final Exam Week

May 18, 2:30 – 4:20 PM

OPTIONAL CUMULATIVE FINAL