

Evolution and Biodiversity Workshop: Biology 171W

Instructors:

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appointment

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Office Hours: TH 12-1 PM

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Class meeting time: MH 504 Tuesday and Thursday 4:00 to 4:50 (occasionally we will meet in your laboratory classroom MH 302)

Course Description & Purpose:

Small group discussions of the scientific process and method as well as science learning strategies applied to course content from Evolution and Biodiversity (Biol 171) and College Algebra (Math 115). Credit/No Credit only.

Corequisites: Biology 171, Mathematics 115 and consent of instructor.

This course will help reinforce concepts that you encounter in Biology 171 and Mathematics 115. We will also work on improving basic study skills that will help you succeed as a biology major.

Grading & Assignments:

Credit will be given to those who accumulate enough points to obtain a C or better in the course (280 points or 70%). Your grade in this course is based on three assignments (A Concept Journal, Biology in the News, and a tentative course plan) and your attendance and participation in this course.

Assignment	Points	Percentage of Points
Concept Journal	150	37.5
Biology/Mathematics in the News	60	15
Attendance	100	25
Participation	80	20
Tentative Course Plan	10	2.5
TOTAL	400	100%

Concept Journal (37.5%) *modified from an assignment given by M. L. Casem

A concept journal is the equivalent of a laboratory notebook or journal for this course. Like any journal, this is a place for you to record your thoughts, observations, and understanding concerning the material we will be covering in Biology 171 and Mathematics 115. Writing is a critical aspect of science and thus expressing yourself clearly utilizing appropriate vocabulary.

This assignment is a way for you to explore what works best for you in terms of examining & studying concepts covered in class or lab. Review key vocabulary (i.e. what is Natural Selection?), summarize the way it works, ask yourself what kind of question you would ask about the concept if you were giving the exam.

There are topics listed on the syllabus that you should review in your concept journal. There will be some time in class to do this and, in particular, we will discuss the questions you have about particular concepts. These topics are not exhaustive and you should feel free to use your journal to record other ideas from class that you wish to include.

Organizing your Concept Journal

- 1.) The first page of your journal is the title page. This page should contain the following information
 - i. Concept Journal
 - ii. Your Name
 - iii. Semester & Year of the course
- 2.) The next two to three pages (if you have very large handwriting) should be reserved as the table of contents.
- 3.) The remainder of the journal will be utilized for entries.

First Assignment for your concept journal-

- 1) After reading “Mathematics is Biology’s Next Microscope, Only Better; Biology is Mathematics Next Physics , Only Better” in your concept journal answer the question: How are math and biology related?
- 2) Think about how you like to study and what works best for you. Draw up a contract with yourself describing how you’ll study for the first exam in biology 171 and mathematics 115. Will you take a similar or different approach for each course?

Biology/Mathematics in the News (15%)

Whenever you study biology or really anything, one of the fun things to do is to look and see if things about your discipline are in the news. Your assignment here is to find an article from a newspaper or news website (e.g. www.cnn.com) which is related to either biology or mathematics and write one paragraph (which should be no longer than half a page) summarizing the article. The first is due on September 8. The second and third are due on October 11 and November 8 respectively.

Tentative Course Plan (2.5%)

Utilizing the planning grid in the Undergraduate advising handbook (orange book) you will plan out your time here at CSUF as a biology major.

Classroom Expectations:

Classroom expectations have been established to promote a sense of community and to ensure an environment of cooperative effort as a community of scholars and learners. Students and instructors are expected to be considerate and respectful, be on time or early to class, avoid distracting others while in class and use common sense, such as leaving pagers / cell phones at home or on a non-audible setting.

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students’ ability to learn and instructors’ ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem, and may be reported to the Associate Dean of Students, Judicial Affairs for further action.

Attendance

Students are expected to attend and participate in discussions. . Since ¼ of the grade depends on in-class performance, class participation and attendance are essential.

Exam, Lab and Assignment Make Up Policy

If you cannot take a test at the scheduled time, you should contact Sean or Kelly as soon as possible with appropriate documentation verifying the circumstances. **PLEASE NOTE** make ups will only be given in the case of documented emergencies or unavoidable conflicts (these must be approved by Sean or Kelly in advance). Please note, it is **YOUR RESPONSIBILITY** to contact Sean regarding make up assignments, labs, or exams.

Late Assignments

Late work will have 10% of the maximum points for that assignment deducted per day that it is late (weekends count). If there are exceptional circumstances the assignment may be given full credit.

ACADEMIC INTEGRITY: I assume that by remaining enrolled in this class your intentions are HONORABLE, and that you accept responsibility for dutiful attendance, earnest effort toward understanding the subject and pledge that you will not cheat on exams.

- **Plagiarism** is the unacknowledged use of another's words or ideas as your own. Use your own words when writing. Use quotation marks and cite the source of any phrase that you "use". Changing one or two words in a sentence is still plagiarism, you must put the information into your own words.

- **Cheating** is the use of another's work as your own. Copying another student's homework, looking at another student's exam, and using information from another student to enhance your performance on a task are all examples of cheating.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. University policies are strictly enforced in this course. Please familiarize yourself with the academic integrity guidelines found in the current student handbook.

Withdrawal from courses: CSUF policy regarding withdrawal from classes (UPS 300.016) will be followed. After the first two weeks of the semester, students may be granted withdrawal ONLY by presenting compelling evidence outlining a physical, medical, or emotional condition that prevents completion of the course. POOR ACADEMIC PERFORMANCE IS NOT EVIDENCE OF A SERIOUS REASON FOR WITHDRAWAL. Students unable to produce official documentation will be required to take the grade they have earned in the class. Please refer to the course schedule for information on the last day to withdraw with a W grade. Important dates concerning registration or drops are on the inside the CSUF Class Schedule or at:http://www.fullerton.edu/admissions/policy_and_deadline_information_htm.

Course Calendar:

The schedule and procedures for this course are subject to change in the event of extenuating circumstances. Such changes will be announced in class. It is the student's responsibility to be aware of changes. Each week we will also discuss content from Biology 171 and from Mathematics 115.

Date	Discussion/Activity	Week	Reading	Assignments Completed Before Class	Concept Journal Topic
8/23	Welcome to Biology 171W	1A			
8/25	Discussion-Math & Biology	1B	"Mathematics is Biology's Next Microscope, Only Better; Biology Is Mathematics Next Physics, Only Better" –J.E. Cohen. 2004. PLoS Biology 2 pp. 2017-2023 Answer the question: How are math and biology related? in your concept journal.	Bring a Spiral Notebook or Composition book to Class	How are math and biology related?
8/30	Study Skills & Learning Styles Discussion	2A		Study & Learning Styles Handouts	Study Contract
9/1	Descriptive statistics, visualizing data, reading and interpreting graphs.	2B	Chapter 9 from How to Study Science		Natural Selection
9/6	Discussion on Firefly Behavior	3A	Case Study #1-Conversations with Fireflies	Questions from the Case Study	
9/8	Case Study #1-cont. & Exam Review 115	3B	Additional Materials from Case Study	Biology/Math in the News # 1	Experimental Design
9/13	A linear model for biological data, graphs in two dimensions.	4A	Case Study# 2-The Petition: A Global Warming Case Study		Microevolution
9/15	More Graphing	4B	Continued Case # 2		Speciation
9/20	Reading and Constructing Phylogenies	5A	Chapter 26 Freeman & look at lab manual 4B & 5A		
9/22	Review for Biology 115 & 171 Exam	5B			Phylogeny
9/27	Being a Biology Major: Time management, stress, and planning the next four years.	6A	Look over Biology Advising Handbook (bring the orange book)		
9/29	Cost Benefit Analysis and Systems of Equations.	6B	How do birds drop things?		Cost-Benefit Analysis
10/4	Why logarithms and exponents are important. pH, the metric system, and dilution.	7A		Tentative Course Plan for your time at CSUF	

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10/6	Exponential Decay	7B			History of Life
10/11	How do populations grow? Bacterial Growth and Exponents	8A		Biology/Math in the News # 2	
10/13	Population Growth Cont.	8B		Concept Journal Due	Challenges of Living on Land
10/18	Mark-Recapture How many are there?	9A			
10/20	Scaling-How should lengths and volumes change	9B			Size and Shape in Animals
10/25	Scaling Continued	10A			Porifera & Cnidaria
10/27	Exam Review for 115	10B			Lophotrochozoa
11/1	Review for Biology 171 Exam	11A			Ecdysozoa & Dueterostomia
11/3	Hardy-Weinberg Activity	11B			
11/8	The Math Behind Hardy-Weingberg	12A		Biology/Math in the News # 3	
11/10	Writing to Learn	12B			Vertebrate Evolution
11/15	Group Evaluation of Passages	13A	**bring Introductions & Materials and Methods for Artificial Selection paper**		
11/17	Mendel Meets Algebra-Heritability	13B	**bring your fastplant data**		Co-Evolution & Biodiversity
11/22	FALL RECESS	14A			
11/24	FALL RECESS	14B			
11/29	Review 115 Exam	15A			
12/1	Using your peers-Peer Evaluation and Comments on Final A-S Paper	15B	**bring in draft of your complete Artifical Selection Paper**		Evolutionary Patterns and Distribution of Live
12/6	Final Exam Review	16A			Conservation Biology
12/8	Final Exam Review	16B		Concept Journal Due	

CLASSROOM SAFETY BRIEFING

- In the event of an emergency such as earthquake or fire:
 - Take all your personal belongings and leave the classroom (or lab). Use the stairways located at the east, west, or center of the building.
 - Do not use the elevator. They may not be working once the alarm sounds.
 - Go to the lawn area towards Nutwood Avenue. Stay with class members for further instruction.
 - For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.
 - Anyone who may have difficulty evacuating the building, please see me after class.
- Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to University Police. Dialing 911 on your cell phone will connect with the Highway Patrol. Tell CHP dispatcher that CSUF Police are the responding agency. Stay on the line until asked to hang up.
- If you want to bring visitors to the classroom, you must obtain permission from the instructor in advance and must sign a volunteer form.
- Visitors to the lab must obtain permission from the Chair and must sign a volunteer form.
- There is no smoking within 20 feet of every campus building. This includes the MH balcony.
- **FOR LAB CLASSES:** Specific hazards or risks in the lab will be discussed prior to each experiment. If you have any questions about the safety of an experiment, please contact me or the lab instructor.
 - If there is a spill of a hazardous chemical, notify your TA immediately.
 - Report all injuries to me or the TA immediately.
 - All students must read and sign the departmental, “Laboratory safety procedures” form at the beginning of each semester.
- **FOR CLASSES WITH FIELD TRIPS:**
 - Make sure you submit an Academic Field Trip Waiver and sign the Participant List for each field trip.
 - Students must comply with all State laws regarding possession, sale and use of alcohol or controlled substances while participating in CSUF related activities.