

**Biology of Dinosaurs (Bio 109): Course Information****Spring 2023****Instructor:**

Dr. Ron Coleman	Pronouns:	he, him, his
	Office:	3023 Tschannen
	Lab:	119 Humboldt Hall
	Tel:	916-278-4063 (TSC) 916-278-3474 (Hmb) 916-705-2606 (cell) until 10 pm
	Email:	<a href="mailto:rcoleman@csus.edu">rcoleman@csus.edu</a>
	Website:	<a href="http://cichlidresearch.com">http://cichlidresearch.com</a> <a href="http://www.csus.edu/faculty/rcoleman/">http://www.csus.edu/faculty/rcoleman/</a>

**Course Location & Times:**

Lecture 34829 Tues, Thurs 4:00 to 5:15pm Brighton 109 (Taught in-person only)

**Office hours:**

Ron Coleman Wed 2-5pm or setup up an appointment by email or for zoom

**Catalog description:**

Bio 109. Biology of Dinosaurs. 3 units. Introduction to the biology of the dinosaurs. Dinosaurs came in a vast array of shapes and sizes and exemplify biodiversity. This course will examine the dinosaurs in an evolutionary framework, discussing their origin, the major lineages, phylogeny, and what they look like today. The course will take advantage of the recent surge in scientific investigations into the biology of dinosaurs, such as parental care, sexual selection, group living, flight and feathers. Does not count toward the Biological Sciences Major. [This means that if you a Biological Sciences Major, you may take the course but the units will not count as electives towards your Major]

**Prerequisites:**

None. This course is intended to be an upper division GE (General Education) course. (Area B5)

**The Area B5 Learning Outcomes are as follows:**

Students will be able to do one or more of the following:

1. Cite critical observations, underlying assumptions and limitations to explain and apply important ideas and models in one or more of the following: physical science, life science, mathematics or computer science
2. Recognize evidence-based conclusions and form reasoned opinions about science-related matters of personal, public and ethical concern
3. Discuss historical or philosophical perspectives pertaining to the practice of science or mathematics.

**Learning Outcomes of this course:**

The Learning Outcomes for this course derive from the general Area B5 Learning Outcomes, specifically, a student will be able to:

1. Demonstrate an understanding of the biodiversity of the dinosaurs (past and present) and the evolutionary relationships of that biodiversity, based on scientific evidence (e.g., fossils, DNA, etc) by drawing cladograms annotated by supporting scientific evidence.
2. Demonstrate an understanding of the fundamental roles of natural and sexual selection in shaping biodiversity, by citing critical observations, underlying assumptions (and limitations) of these theories
3. Demonstrate an understanding of the tight relationship between form and function, recognizing how we utilize scientific evidence and scientific methods to draw these conclusions, particularly with

reference to organisms which no longer exist.

4. Recognize evidence-based conclusions by reading and analyzing the primary scientific literature in the process of writing a well thought-out term paper in which they must properly cite their sources

#### **Attendance and Deadlines:**

I expect you to attend every lecture; you miss class at your own risk. Anything I say is fair game for exams, whether it is in the text or not. Some things I say will definitely not be in the text, and some may contradict the text. In the latter case, what I say is taken to be the correct answer. If there is a difference between what I say and what is in the text or what you have learned elsewhere, **please ask about** it and we will discuss the differences.

My goal as a lecturer is to guide and assist you in learning about this material. I cannot do that if you are not in class or if you do not tell me what you do not understand. To help me learn and remember who you are, I take a photograph of each student on the first or second day of class. These photos are not made public to other students or any other person; they are merely a tool for me to remember who you are. You may “opt out” of having your photograph taken, but I reserve the right to require any student for which I do not have a photograph to produce a state-issued identification (e.g., a Driver’s license) at the midterm or final exams.

If you miss a class, it is your responsibility to get the notes from another student, not from me. I DO NOT hand out lecture notes, nor do I post them to the web.

Deadlines are strictly adhered to. It is not fair to students that complete work on time for other students to have extra time to do the same work. Plan ahead and schedule your time. Most importantly, do not leave things to the last minute; you do not need that kind of stress!

You can always turn in assignments early, i.e., before the deadline.

If you get sick, due to the Corona-virus, or something else, let me know and we will make alternate arrangements.

**REALLY IMPORTANT NOTE: Online materials remain the property of the instructor (i.e., me). You may not distribute them and you certainly may not post them to a different online site. Doing so constitutes theft and you will be prosecuted as such.**

#### **Email and CANVAS policies:**

This course uses both CANVAS and email extensively. As a Sac State student, you are responsible for regularly checking your Saclink email account (i.e., daily). Failing to do an assignment because you did not check your Saclink email account is your problem. Furthermore, when corresponding with me about this course, you **MUST** use your Saclink email account, not a gmail, yahoo or any other email account. This is an official University policy (IRT-0102, January 1, 2010).

Handouts of the term paper, and some videos are found on CANVAS. Anything on the CANVAS site is “testable”, i.e., the material may appear on an exam.

I do not use the scheduling features of CANVAS to keep you informed of what you have done and what you still need to do. Keeping track of your assignments is your responsibility. This is not high school. Similarly, I do not use the grade book facilities of CANVAS. This is deliberate.

Do NOT send me messages within the CANVAS system. I will not read them. Send any email messages to me directly at [rcoleman@csus.edu](mailto:rcoleman@csus.edu)

When sending me an email, think carefully about the subject line and the names of any file attachments. I get hundreds of emails a day. Sending me a filename such as “assignment.docx” is a very bad idea. File names should have your name included in the filename. For example, a far better filename would be “Coleman\_Ronald\_Bio109\_termpaper\_proposal.docx” You need to get into the habit of using descriptive filenames and subject lines in all your work and correspondence. This is a valuable job skill.

Equally importantly, be sure that every document that you send me has your name inside of it, not just in the filename, and also includes the current date, i.e., the date you are submitting it. Do NOT put the date it is due; I already know that. You need to put the current date in the document so that you and I can keep track of which version you are sending me (see below under Writing and Revision). So for instance, when you first submit your term paper proposal, it might have a date of February 16, 2023. When you revise it a few

days later, the date would now say February 18, 2023, making it easy for you and I to see which version is the newer version.

NEVER, EVER “share” files with me or send me links to documents. I will not read “shared” files. You must attach any documents/spreadsheets/pdfs to an email and send that to me. The reason for this is that certain shared documents and linked documents can change after you send them. Furthermore, “shared files” go away after a period of time. I cannot grade material that can potentially be changed after you submit it or disappears.

It is also critical that you not send unrelated things in the same email, e.g., “Here is assignment 2 and my term paper proposal.” Send each one as a separate email. This makes it much easier for me (and you ) to track what is done and what needs to be done. By the way, this is excellent advice for all email correspondence in your life: one email, one topic. Sending multiple, unrelated things in a single email pretty much guarantees that one of them will be ignored or misplaced.

#### **Textbook:**

Fastovsky, David E. and David B. Weishampel (2021) *Dinosaurs: A Concise Natural History*. (4th Edition). Cambridge University Press, Cambridge. ISBN: 978-1-108-46929-6. **REQUIRED.**

#### **Exams:**

There will be two midterms and a final for the course. Exams are held during the lecture period and will be a mixture of short-answer and essay questions. I do not believe in multiple choice questions and do not use them. You **MUST** write your answers in sentences. Answers not written in sentences are worth ZERO.

Exams will be comprehensive, i.e., anything in the whole course up to that point in time is fair game. My previous students comment on two aspects of my exams: I am a hard grader and I am a fair grader. You can expect long exams that test your knowledge, but they will be exams without tricks. My goal is to have you tell me what you know and understand. You will have to work very quickly.

I do not provide separate “study guides” for exams. This course is an introduction to the study of Dinosaurs; the lectures are your study guide to that material.

#### **Writing and Revision:**

Good writing is the absolute most important skill you can develop in college. It is one of the key questions employers ask about potential employees: employers can teach you how to use a new machine or a new type of analysis, but they are not interested in teaching you how to write. Writing skill often determines your success in your career. The bad news is that most college students are not good writers. I suspect this is because of the proliferation of multiple-choice exams, and the lack of opportunities to practice extensive writing or to receive critical feedback. The good news is that you can easily learn to be a better writer. I will help you with this. You will do a lot of writing in this course, during exams, for the term paper and for the assignments. I do not accept poor writing. If you turn in an assignment which is poorly written or with spelling or grammatical errors, I will return it to you to revise. I will keep sending it back to you until it is correct. I do not expect you to be perfect at first, but I do expect you to learn from your mistakes.

#### **Term Paper:**

The term paper is an integral part of this course. It is your opportunity to explore a particular topic about dinosaurs in depth. You will receive a separate lengthy handout that describes the details and process of writing the term paper, but the key parameters are as follows. You will find and read three pieces of primary literature on a topic of your choosing (related to dinosaurs). You will write an initial proposal (approximately 100 words) early in the semester. A little later, you will turn in a “part I” which includes the analysis of one of your primary sources (approximately 600 words) and finally you will turn in the full term paper towards the end of the course; it will include analysis of all three primary sources (minimum 1500 words). After the first two stages, you will receive constructive feedback to allow you to produce a quality final product. In doing so, you will have had to correctly identify primary scientific literature (as opposed to other kinds of writing), read at least three pieces of primary scientific literature, analyzed it, thought about it, and written about it using the appropriate style and form for scientific writing (including proper citation of your sources). This process will give you a much greater understanding of what science is and how it works.

#### **Grading:**

**This course is worth 3 units.**

The number of points/questions on a particular exam is irrelevant to the exam's worth -- it is merely a tool for grading. What matters are the following percentages.

Your lecture grade will be calculated according to the following scheme:

Midterm I	20
Midterm II	25
Final Exam	30
Term Paper	20
Assignments	5
	----
	100%

Your letter grade will be calculated according to the following table:

A = 93 to 100%	C+ = 77 to 79.9%
A- = 90 to 92.9%	C = 73 to 76.9%
B+ = 87 to 89.9%	C- = 70 to 72.9%
B = 84 to 86.9%	D+ = 67 to 69.9%
B- = 80 to 83.9%	D = 60 to 66.9%
	F = 0 to 59.9%

I generally do not adjust or curve or scale grades; If you want an "A", work for it and make it happen!

I do not hesitate to correct any errors I make in grading (e.g., incorrect addition or if I missed grading an answer), but keep in mind that I am looking for clear, succinct answers, not answers that sort-of-show-you-possibly-might-know-what-you-mean. If you feel that your answer deserves a better grade, please return it to me promptly.

I do not use "extra credit" assignments.

**Honor Code:**

Please do not cheat. Besides the fact that we will be forced to take strong measures if we catch you -- including recommending your dismissal from the class and from the university -- I will be profoundly disappointed in you.

Do not even think about doing any of the following:

- a. giving or receiving information from another student during an examination
- b. using unauthorized sources for answers during an exam such as writing answers on hats, clothing or limbs
- c. illegally obtaining the questions before an exam
- d. altering the answers on an already-graded exam
- e. any and all forms of plagiarism
- f. destruction and/or confiscation of school and/or personal property

**Feedback:**

I appreciate your feedback on this course. It is most useful to tell me things while the course is in progress, rather than waiting until the end of the course. If there is something that needs changing, LET ME KNOW and I will see what I can do about it. This course is a collaboration between you and me. I really enjoy teaching this class and I want you to have a great time as well.

**Services to Students with Disability (SSWD):**

Sacramento State is committed to ensuring an accessible learning environment where course or instructional content are usable by all students and faculty. If you believe that you require disability-related academic adjustments for this class (including pregnancy-related disabilities), please immediately contact Services for Students with Disabilities (SSWD) to discuss eligibility. A current accommodation letter from SSWD is required before any modifications, above and beyond what is otherwise available for all other students in this class, will be provided. Please be advised that disability-related academic adjustments are not retroactive. SSWD is located on the first floor of Lassen Hall 1008. Phone is 916-278-6955 and email is

sswd@csus.edu. For a complete listing of services and current business hours visit  
<https://www.csus.edu/student-affairs/centers-programs/services-students-disabilities/>

### Student Health and Counseling Services:

Your physical and mental health are important to your success as a college student. Student Health and Counseling Services (SHCS) in The WELL offers medical, counseling, and wellness services to help you get and stay healthy during your time at Sac State. SHCS offers: Primary Care medical services, including sexual and reproductive healthcare, transgender care, and immunizations; urgent care for acute illness, injuries, and urgent counseling needs; pharmacy for prescriptions and over-the-counter products; mental health counseling, including individual sessions, group counseling, support groups, mindfulness training, and peer counseling; athletic training for sports injury rehabilitation; wellness services, including nutrition counseling, peer-led health education and wellness workshops, and free safer sex supplies; violence and sexual assault support services. Most services are covered by the Health Services fee and available at no additional cost.

### Crisis Assistance & Resource Education Support (CARES):

If you are experiencing challenges with food, housing, financial or other unique circumstances that are impacting your education, help is just a phone call or email away. The CARES office provides case management support for any enrolled student

### Additional Resources and Sources of Information:

Links to campus policies and resources related to student academics may be found on the [www.csus.edu](http://www.csus.edu) website

Policies: Grading policies,  
 Sacramento State Academic calendar,  
 Hornet Honor Code  
 Student Rights Responsibilities  
 Resources: Martin Luther King Center  
 Multicultural Center  
 Dreamer Resource Center  
 Student Success Center  
 Academic Advising  
 PARC  
 Reading & Writing Center

### Schedule:

This schedule of classes is subject to change.

Week	Date	Lecture
1	Jan 24 Jan 26	Introduction to Class, Formative vs Summative Assessment, Editing, Intro to Biodiversity and Dinosaurs Vertebrate Phylogeny <b>Jan 27: One-Dinosaur assignment due</b>
2	Jan 31 Feb 2	Timescales, Evolution by Natural Selection
3	Feb 7 Feb 9	Literature, Citation, Term Paper, Directions of Selection
4	Feb 14 Feb 16	Species definitions, Sexual selection, Allopatric speciation Tree of Life – Phylogenetics <b>Feb 16: Term paper proposal due</b>
5	Feb 21 Feb 23	<b>Midterm 1</b> Constructing phylogenies, Cladistics

6	Feb 28 Mar 2	Cladistics Major Lineages of dinosaurs
7	Mar 7 Mar 9	General Anatomy of Skeletons Theorpods
8	Mar 14 Mar 16	<b>Mar 14: Term paper Part I due</b> Theropods Birds and Flight
9	SPRING BREAK	no class
10	Mar 28 Mar 30	Plants of the Mesozoic Era Saurischians
11	Apr 4 Apr 6	Sauropods
12	Apr 11 Apr 13	<b>Midterm 2</b> Sauropods
13	Apr 18 Apr 20	<b>Apr 18: Term paper due</b> Sauropods
14	Apr 25 Apr 27	Ornithiscians Ornithiscians
15	May 2 May 4	Ornithiscians Non-dinosaurs of the Mesozoic
16	May 9 May 11	Non-dinosaurs of the Mesozoic, The “end” of the dinosaurs
17	May 16 (tues)	<b>Final Exam 3-5pm</b>