

San José State University
Geology 126: Paleontology (Lecture and Laboratory),
Spring 2009

Instructor: Dr. Jonathan Hendricks

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Office Hours: Tuesday, 3:00-5:00PM
Wednesday, 3:00-5:00PM
Thursday, 12:00-1:00PM
Or, by appointment if you cannot make any of the above times.

Class Days/Time: Lecture: Monday & Wednesday, 1:30PM – 2:20PM
Lab: Monday, 2:30-5:00PM

Classroom: 218 Duncan Hall

Prerequisites: GEOL 3, GEOL 4L, and GEOL 7

Units: 3 units

Course Description

Study of the major groups of invertebrate fossils and their use in geological studies.

Course Goals and Student Learning Objectives

By the end of this course, you should be able to:

- a. identify and classify the major groups of fossils;
- b. demonstrate knowledge of the stratigraphic distributions of the major groups of fossils
- c. understand and know the major concepts, ideas, and vocabulary relevant to the study of ancient life;
- d. understand how the fossil record is scientifically studied;
- e. appreciate the impact that knowledge of the fossil record has had on evolutionary theory;
- f. apply a scientific approach to answer questions about ancient life

Required Textbook & Materials

Prothero: *Bringing Fossils to Life*, 2nd Edition (McGraw Hill: ISBN 978-0-07-366170-4). *Note: The first edition of this book is no longer in print, but it would be an acceptable alternative to the second edition and you may use it if you can find a copy).*

Colored pencils, pencils for drawing, and eraser.

Lectures

PDF copies of the lecture slides will typically be posted to Blackboard by the evening before class. Feel free to print these and bring them with you to class (copies will not generally be provided to you in class).

It is expected that you will have read the assigned readings *prior* to attending the lecture for which they are assigned.

Classroom Protocol

All students are expected to act civilly during class time. This means: no excessive talking/whispering during lecture, no reading newspapers/magazines, no talking on cell phones or sending text messages (turn them *OFF* before class begins!!), no use of laptops for purposes other than taking notes (e.g., *NO game playing, internet surfing, checking email, or instant messaging*), etc. Please be respectful to each other. If you have to arrive late or leave early, be as quiet and considerate as possible – *DO NOT* make this a regular habit. Any activities deemed disruptive will be met with appropriate disciplinary action, including expulsion from the classroom. Students are welcome to raise their hands and ask me questions when called upon. I expect e-mails to me to be respectful and professional; I will do my best to respond to such e-mails within 24 hours.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. [Information on add/drops are available at http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-324.html](http://info.sjsu.edu/web-dbgen/narr/soc-fall/rec-324.html) . [Information about late drop is available at http://www.sjsu.edu/sac/advising/latedrops/policy/](http://www.sjsu.edu/sac/advising/latedrops/policy/) . Students should be aware of the current deadlines and penalties for adding and dropping classes.

Assignments and Grading Policy

There will be a total of 1000 points available in the course:

Exam 1:	150 points
Exam 2:	150 points
Final Exam:	200 points
Lab Assignments:	200 points (20 points each)
Lab Practical:	150 points
Project:	150 points

Final grades—based upon percentages of the total points available—will be calculated using the following distribution:

99% to 100%	A+
93% to <99%	A (excellent)
90% to <93%	A-
87% to <90%	B+
83% to <87%	B (good)
80% to <83%	B-
77% to <80%	C+
73% to <77%	C (adequate)
70% to <73%	C-
67% to <70%	D+
63% to <67%	D (poor)
60% to <63%	D-
<60%	F (failure)

It is possible that a downward adjustment, to a maximum of 10 percentage points, may be made to this scale at the end of the semester if the final overall median point total for all work turned in by all students is less than 80%. In such a case, the grade scale will be shifted downward by the difference between the median score and 80%. For example, if the final median grade percent is 75%, attaining 85% of the total points will earn you an A- in the course. The grade scale will not be shifted upwards (if you earn at least 93% of the total points, you are guaranteed an A in the class).

Exams

There will be a total of three exams: two in-class midterms (February 25 and April 8) and a final exam (May 18, 12:15-2:30PM). Each exam will be worth 150 points and

will consist primarily of short-answer and essay questions. The first two exams will successively cover approximately one-third of the course material; the final exam will cover the last third of the course and material covered earlier in the semester.

Project

There will be a course project that will involve analysis of a dataset for the purposes of addressing several paleontological questions. This project will be introduced during the laboratory period on February 23 (there will be no lab to turn in that day). The project—which is worth a total of 150 points—will involve turning in a final written report and presenting your research to the class. The written report (~10 pages) will be worth 100 points and will be due on April 20. Late reports will be penalized 15 points/day. The classroom presentation (~15 minutes) will be worth 50 points. While two consecutive lab periods (May 4 and May 11) will be used for presentations, you must be prepared to give your presentation on May 4 (order of presentations will be established on May 4 by drawing names from a hat at the beginning of the lab period). Students not prepared to give their presentation on May 4 will be penalized 25 points. Additional details will be provided on February 23.

Labs

The course has laboratory component featuring 11 labs that will require you to answer questions and turn them in for grading. Each lab is worth 20 points. One lowest lab score will be dropped when computing your final grade. Unless told otherwise, you may work together on the labs, but the work that you turn in for grading must be your own (for example, make sure that you answer questions in your own words). Unless noted otherwise, labs will be due at the end of the laboratory period.

Field Trip

There will be an optional class field trip to the Santa Cruz area to collect Cenozoic marine fossils on Sunday, February 15. Additional details will be provided in class.

Extra Credit

Besides the *possibility* of one to several extra credit questions on each of the exams, no extra credit work will be given or accepted.

Make-Ups

Except in cases of serious illness (supported by a doctor's note) or the death of a loved one, make-ups of exams, labs, and other course work WILL NOT be permitted.

University Policies

Academic integrity

Students should know that the University's [Academic Integrity Policy is available at http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf](http://www.sa.sjsu.edu/download/judicial_affairs/Academic_Integrity_Policy_S07-2.pdf). Your own commitment to learning, as evidenced by your enrollment at San Jose State University and the University's integrity policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for [Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial_affairs/index.html](http://www.sa.sjsu.edu/judicial_affairs/index.html).

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include in your assignment any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy F06-1 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

Student Technology Resources

Computer labs for student use are available in the Academic Success Center located on the 1st floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library.

Learning Assistance Resource Center

The Learning Assistance Resource Center (LARC) is located in Room 600 in the Student Services Center. It is designed to assist students in the development of their full academic potential and to motivate them to become self-directed learners. The center provides support services, such as skills assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. [The LARC website is located at http://www.sjsu.edu/larc/](http://www.sjsu.edu/larc/).

SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. [The Writing Center website is located at http://www.sjsu.edu/writingcenter/about/staff/](http://www.sjsu.edu/writingcenter/about/staff/).

Peer Mentor Center

The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The Peer Mentor Center is staffed with Peer Mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, Peer Mentors are navigators, offering “roadside assistance” to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer Mentor services are free and available on a drop –in basis, no reservation required. The Peer Mentor Center website is located at <http://www.sjsu.edu/muse/peermentor/> .

Course Schedule (as of January 22, 2009)

Note that this schedule is subject to change; any changes will be presented to the class during the regular lecture period.

Date	Lectures, Reading Assignments, and Exam Dates
Jan. 26	Lecture 1: Introduction to the Course and Fossils
	Lab 1: Types of Fossils and Their Preservation (Prothero Ch. 1)
Jan. 28	Lecture 2: The Fossil Record (Prothero Ch. 1)
Feb. 2	Lecture 3: The Utility of Fossils (Prothero Ch. 10)
	Lab 2: The Utility of Fossils (Prothero Ch. 10)
Feb. 4	Lecture 4: Recognizing Fossil Species (Prothero Ch. 2, 3)
Feb. 9	Lecture 5: Principles of Taxonomy (Prothero Ch. 4)
	Lab: 3 Recognizing Fossil Species (Prothero Ch. 2-4)
Feb. 11	Lecture 6: Introduction to Evolution and Extinction (Prothero Ch. 5, 6)
Feb. 16	Lecture 7: Phylogenetic Systematics (Prothero Ch. 4)
	Lab: 4 Phylogenetic Systematics (Prothero Ch. 4)
Feb. 18	Lecture 8: Macroevolution and the Fossil Record (Prothero Ch. 5)
Feb. 23	Lecture 9: Overview of Biodiversity, Past and Present; Review for Exam 1
	Lab: Introduction to Course Project (nothing to turn in)
Feb. 25	Lecture: Exam 1
Mar. 2	Lecture 10: Rise of the Eukaryotes (Prothero Ch. 11)
	Lab 5: Protists (Prothero Ch. 11)
Mar. 4	Lecture 11: The Earliest Animals
Mar. 9	Lecture 12: The Cambrian Radiation
	Lab 6: Algae and Sponges (Prothero Ch. 12)
Mar. 11	Lecture 13: The Cnidarians, Part 1 (Prothero Ch. 12)
Mar. 16	Lecture 14: The Cnidarians, Part 2 (Prothero Ch. 12), Review for Exam 2
	Lab 7: Cnidarians (Prothero Ch. 12)
Mar. 18	Lecture 15: Intro to the Lophotrochozoans; Bryozoans

Date	Lectures, Reading Assignments, and Exam Dates
	(Prothero Ch. 13)
Mar. 30	Lecture 16: Brachiopods (Prothero Ch. 13)
	Lab 8: Brachiopods and Bryozoans (Prothero Ch. 13)
Apr. 1	Lecture 17: Mollusks I (Introduction; Bivalves) (Prothero Ch. 15)
Apr. 6	Lecture 18: Mollusks II (Gastropods; Cephalopods) (Prothero Ch. 15); Review for Exam 2
	Lab 9: Mollusks (Prothero Ch. 15)
Apr. 8	Lecture: Exam 2
Apr. 13	Lecture 19: Arthropods (Prothero Ch. 14)
	Lab 10: Arthropods (Prothero Ch. 14)
Apr. 15	Lecture 20: Deuterostomes I (Echinoderms) (Prothero Ch. 16)
Apr. 20	Lecture 21: Deuterostomes II (Graptolites and Conodonts) (Prothero Ch. 17); Project Reports Due
	Lab 11: Echinoderms, Graptolites, and Conodonts (Prothero Ch. 16, 17)
Apr. 22	Lecture 22: Deuterostomes III (Vertebrates) (Prothero Ch. 17)
Apr. 27	Lecture: Lab Practical 1:30-5:00 PM
	Lab: Lab Practical Continued
Apr. 29	Lecture 23: Paleogeology I (Prothero Ch. 8)
May 4	Lecture 24: Paleogeology II (Prothero Ch. 8)
	Lab: Presentations
May 6	Lecture 25: Biogeography (Prothero Ch. 9)
May 11	Lecture 26: Big Questions in Paleobiology
	Lab: Presentations
May 13	Lecture 27: Epilogue; Review for Final Exam
May 18	Final Exam (12:15-2:30PM)