

## Geology 331

## PALEONTOLOGY

Fall 2003

Instructor: Dr. Thomas W. Kammer

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Web Page: [geo.wvu.edu/~kammer/welcome.htm](http://geo.wvu.edu/~kammer/welcome.htm)

Class Web Page: [geo.wvu.edu/~kammer/geol331.htm](http://geo.wvu.edu/~kammer/geol331.htm)

Office Hours: 2:30-5:00 p.m., Monday and Wednesday; other hours by appointment. You are encouraged to come and see me whenever you feel the need to discuss course materials or issues relevant to being a geology major. It's always a good idea to make an appointment, even for times during the scheduled office hours, as I sometimes have to step out of my office to attend to departmental or university chores.

Lecture: Monday, Wednesday, Friday, 10:30-11:20, Room 310.

Lab: Monday, 2:30-4:20 or 4:30-6:20, Room 301.

Texts: Lecture: *Life of the Past*, by Ausich and Lane, 1999

Prerequisites: Geology 103 & 104

Grades: Lecture is 70% and lab is 30% of the course grade. The lecture grade consists of three tests worth 20% each, and 10% for quizzes, exercises, and field trip.

Attendance: **Required.** You may have up to four unexcused absences from the lecture. After that your course grade will be lowered by one letter grade if you have any additional unexcused absences. Lab attendance is worth 10% of the lab grade. You will be docked 2% for each missed lab up to a maximum of 10% total. Excused absences for legitimate reasons (serious illness, death in the family, etc.) require an acceptable explanation.

Field Trip: **Required.** Departure: Friday, Oct. 10, 4 pm; return, Saturday, Oct. 11, 10 pm. Friday night stay in Richmond, Indiana (required motel fee). Upper Ordovician Paleontology and Stratigraphy of southeastern Indiana. Collecting sites include Richmond, Brookville North, and Bon Well Hill. These are some of the best invertebrate fossil collecting localities in North America.

## Educational Goals:

1. Be able to recognize and identify major kinds of fossils in sedimentary rocks.
2. Develop an understanding of the application of paleontologic data to geologic problem solving. This includes dating and correlation (biostratigraphy), and analysis of depositional environments (paleoecology).
3. Develop an appreciation of the use of the fossil record in the study of evolution, extinction, and earth history.
4. Develop a fundamental understanding of the evolution (and extinction) of major groups in the history of life on earth so that you can put the living world in its proper perspective.

## **SOCIAL JUSTICE STATEMENT**

West Virginia University is committed to social justice. I concur with that commitment and expect to foster a nurturing learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color, or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Disability Services (293-6700).

## A note on Academic Dishonesty

Each student is expected to submit his or her own work on exercises, quizzes, and tests. While working on exercises it is normal to discuss aspects of the assignment with other students -- this is an important way of learning. However, it is not acceptable to submit someone else's work as your own. I expect each student to be familiar with the regulations on plagiarism and cheating as described in the WVU student handbook, the Mountie (Appendix A, Section 3.1.1.3), or the WVU Undergraduate Catalog.

**Geology 331****PALEONTOLOGY****Fall 2003****LECTURE SCHEDULE**

<u>Week of</u>	<u>Topic</u>	<u>Text</u>	<u>Readings</u>
Aug. 18	Time and Fossils	Chs. 1, 3 (33-47)	Kidwell & Sepkoski, 1999
Aug. 25	Organization of Life	Ch. 2	Carlson, 1999
Sept. 1	Evolution	Ch. 5	
Sept. 8	Evolution		Carroll, 1997
Sept. 15	Extinction	Ch. 5	Sepkoski, 2001
<b>TEST 1, FRIDAY, SEPTEMBER 19</b>			
Sept. 22	Biostratigraphy	Ch. 3 (47-54)	Hedberg&Salvador, 1994
Sept. 29	Precambrian Fossils	Chs. 4, 8	
Oct. 6	Marine Invertebrate Fossils	Chs. 9, 10, 11, 12	Nash, 1995
Oct. 13	Trace Fossils		Prothero, 1998
<b>TEST 2, MONDAY, OCTOBER 20</b>			
Oct. 20	Fish, Amphibians, and Reptiles	p. 186-190, 199-204, & Ch. 15	
Oct. 27	Dinosaurs	Ch. 15	Lucas, 2000
Nov. 3	<u>No class Nov. 3 or 5, GSA Annual Meeting in Seattle</u>		
Nov. 10	Dinosaurs and Birds		Padian and Chiappe, 1998
Nov. 17	Mammals	Ch. 16	
Nov. 24	Thanksgiving Recess		
Dec. 1	Human Evolution	Ch. 17	Marshall, 1999

**TEST 3, WEDNESDAY, DECEMBER 10, 11 am**

**OUTSIDE READINGS FOR GEOLOGY 331 LECTURE**  
**(Additional readings may be added during the semester.)**

Downtown Campus Library Reserve, traditional reserve holdings. Use Course Reserve on MountainLynx Electronic Catalog and look up Instructor = Kammer, Thomas. Articles are listed by either author, or title, so check both. For eReserve the username is "kammer" and the password is "647".

Carlson, S.J. 1999. Evolution and systematics, p. 95-117. *In*: J. Scotchmoor and D.A. Springer (eds.), Evolution, Investigating the Evidence. Paleontological Society, Special Publication, Volume 9.

Carroll, R.L. 1997. Patterns and Processes of Vertebrate Evolution. Cambridge University Press. Ch. 1, Current problems in evolutionary theory, p. 1-18; Ch. 2, Theories of evolution at the level of populations and species, p. 19-33.

Hedberg, H.D. and A. Salvador (eds.). 1994. International Stratigraphic Guide. International Union of Geological Sciences and the Geological Society of America. Ch. 7, Biostratigraphic Units, p. 53-67.

Kidwell, S. and J. J. Sepkoski. 1999. The nature of the fossil record, p. 61-76. *In*: J. Scotchmoor and D.A. Springer (eds.), Evolution, Investigating the Evidence. Paleontological Society, Special Publication, Volume 9.

Lucas, S.G. 2000. Dinosaurs, The Textbook, 3<sup>rd</sup> edition. McGraw Hill. Ch. 12: Dinosaur Biology and Behavior, p. 181-195; Ch. 13: Hot-Blooded Dinosaurs?, p. 197-214.

Marshall, C.R. 1999. Missing links in the history of life, p. 119-144. *In*: J. Scotchmoor and D.A. Springer (eds.), Evolution, Investigating the Evidence. Paleontological Society, Special Publication, Volume 9.

Nash, M. 1995. When life exploded. Time Magazine, Dec. 4, p. 66-74.

Padian, K. and L.M. Chiappe. 1998. The origin of birds and their flight. Scientific American, February 1998.

Prothero, D.R. 1998. Bringing Fossils to Life, WCB/McGraw-Hill. Chapter 18: Fossilized Behavior, Trace Fossils, p. 402-416.

Sepkoski, J.J., Jr. 2001. Mass extinctions, concept of. Encyclopedia of Biodiversity, Volume 4, p. 97-110.

Instructor: Joe Lebold

Office: 201 White Hall

Office Hours:

Grades:	Exercises	30%
	Quizzes	60%
	Attendance	<u>10%</u>
		100%

Week

Topic

1	8/18	Fossil Preservation and Taphonomy
2	8/25	Taxonomy: Identification and Classification of Fossils
3	9/1	LABOR DAY RECESS
4	9/8	Protists and Biostratigraphy
5	9/15	Reef Builders and Colonial Invertebrates: Sponges, Corals, and Bryozoans
6	9/22	<b>Quiz 1</b> (Labs 1, 2, 4, 5); Brachiopods and Molluscs
7	9/29	Upper Ordovician invertebrates of the Cincinnati region
8	10/6	Arthropods
9	10/13	Echinoderms
10	10/20	Trace Fossils
11	10/27	<b>Quiz 2</b> (Labs 6, 8, 9, 10); Fish, Amphibians, and Paleozoic Reptiles
12	11/3	<i>No Lab, GSA Meeting in Seattle</i>
13	11/10	Mesozoic Reptiles, Dinosaurs, and Birds
14	11/17	Human Evolution
15	12/1	<b>Quiz 3</b> (Labs 11, 13, 14)