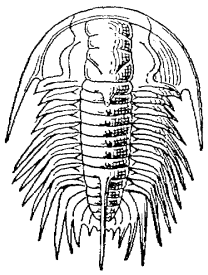
Invertebrate Paleontology – GEOL 137

Fall 2008



LECTURE: M,F 11:15-12:10, Gittleson 162
LAB: F 1:55-5:00, Gittleson 162
Instructor: J Bret Bennington
Office: Gittleson 147 : Email GEOJBB@Hofstra.edu
http://people.hofstra.edu/faculty/J_B_Bennington/

Office Hours: M-F 10:00-11:00

Text: *Principles of Paleontology 3rd Ed.*, Foote and Miller

Week	Weekly Topics and Labs	Chapter
Sept 5	Introduction	
Lab	Modes of Fossilization	1.1, 1.2
8,12	The History of Paleontology	
Lab	**Friday Lecture and Lab Canceled**	
15,19	Geologic Timescale and Biostratigraphy	6.1-6.3
Lab	Graphic Correlation	Box 6.1
22,26	Micropaleontology and Palynology	
Lab	**Friday lecture and lab - AMNH Field Trip**	
29, Oct. 2	Paleoclimatology	9.5
Lab	Micropaleontology	
6,10	Ichnology / Reading discussion	
Lab	Colonial Organisms – Sponges / Corals / Bryozoa	
13,17	Taphonomy / **Midterm Exam**	1.3-1.5
Lab	Bivalved Organisms – Brachiopods and Pelecypods	
20,24	Paleoecology	9.1-9.4
Lab	Sampling and Analysis of Fossil Assemblages (**field trip to the beach**)	
27,31	Systematics	4.1-4.4
Lab	Mollusca – Gastropods and Cephalopods	
Nov3,7	Evolutionary Paleobiology – Diversity and Extinction History	8.1-8.6
Lab	Trilobites and other arthropods	
10,14	Evolutionary Rates and Trends	7.1-7.3
Lab	Calculating Origination and Extinction Rates	
17,21	The Archean and Proterozoic record of life	
Lab	Echinoderms and Graptolites	
24,28	The Cambrian Explosion	10.2
Lab	**Friday classes not in session (Thanksgiving Recess)**	
Dec 1,5,8	Pleistocene Megafaunal Extinctions / Student Presentations	10.5
Lab	Student Presentations – **Research Papers Due by Dec. 8 in class**	

Final Exam – Wednesday, Dec. 17, 10:30 AM

Paleontology – GEOL 137

Materials: Lab sketchbook, drawing and colored pencils, hand lens

Course Objectives: Invertebrate paleontology was once called the 'handmaiden of stratigraphy' because of the usefulness of fossils for correlating sedimentary strata. Fossils also provide information needed to solve a variety of other geological problems. However, paleontology is also fascinating in itself as the study of the history and evolution of life. My objective in this course is to give you both sides of the story. Thus, we will learn to identify and use fossils as geological tools, and we will learn how paleontologists analyze fossils to interpret the history of life on Earth.

Lab work and notebook. We will use the laboratory to get some hands-on experience with fossils and paleontological techniques for data acquisition and analysis. Some labs will be written up as reports. Other labs will require that you observe fossil specimens, sketching and comparing them, to develop the ability to identify the common types of fossils found in the field.

Readings and Discussion Questions: I will assign readings and discussion questions on a semi-weekly basis, which must be answered and handed it. These questions will come from scientific papers and textbook readings relevant to the lecture topics.

Research Paper / Presentation Project: One of the main goals of this course will be to develop your understanding of how scientific inquiry works and how people do science. So, in addition to reading and analyzing scientific research papers related to paleontology throughout the course, we will also have a final project where you will be responsible for investigating a research project / topic of your choosing and presenting the research project to the class, as if it were your own, in an oral presentation / poster session. A short research paper summarizing your topic will also be handed in.

Course Grade: Final grades will be based on two lecture exams (one midterm and one final - 40%), lab reports (20%), discussion questions (20%) and the research paper project (20%).

- **Field Trips**: I will try to organize at least one fossil collecting trip for a weekend during the semester. In addition to this, there is one planned Friday trip to the American Museum of Natural History and one field trip to local beaches scheduled during lab. Details will be discussed in class.

Academic Honesty: Plagiarism is a serious ethical and professional infraction. Hofstra's policy on academic honesty reads: "**The academic community assumes that work of any kind [...] is done, entirely, and without assistance, by and only for the individual(s) whose name(s) it bears.**" Please refer to the "Procedure for Handling Violations of Academic Honesty by Undergraduate Students at Hofstra University" to be found at http://www.hofstra.edu/PDF/Senate_FPS_11.pdf , for details about what constitutes plagiarism, and Hofstra's procedures for handling violations.

Student Learning Objectives: Geol. 137 – Invertebrate Paleontology (Bennington)

1. Students will demonstrate the ability to accurately report on and draw conclusions from close readings of works of scientific journalism and research literature. (5a) [1a, 1b, 1c, 1d, 1e, 2a, 3a, 3c, 3e, 3f]

2. Students will demonstrate the ability to identify common types of invertebrate macrofossils and microfossils. (1e, 2a) [2c, 2e]

3. Students will apply their knowledge of invertebrate fossils to make estimates of the age of fossil assemblages using the principles of relative dating and biostratigraphy. (3c) [2c, 2e]

4. Students will use fossil data to make biostratigraphic and lithostratigraphic correlations. (3c) [2c, 2e]

5. Students will collect and quantitatively analyze data from fossils or subfossils to make environmental inferences. (3b, 4b) [2c, 2e]

6. Students will produce and present to the class a poster explaining a published research paper of their choosing. (5a, 5b, 5d, 5e) [1a, 2a, 4a, 4b, 4c, 6a, 6b, 6c, 7a]

These learning objectives relate to the learning goals and objectives of both the Hofstra Geology Department and the General Education Distribution of the Hofstra College of Liberal Arts and Sciences:

(Departmental Outcomes): 1e, 2a, 3b, 3c, 4b, 5a, 5b, 5d, 5e
For the complete list, go to:
http://www.hofstra.edu/Academics/Colleges/HCLAS/GEOL/geol_goals.html

[General Education Distribution Outcomes]: 1a, 1b, 1c, 1d, 1e, 2a, 2c, 2e, 3a, 3c, 3e, 3f, 4a, 4b, 4c, 6a, 6b, 6c, 7a
For the complete list, go to:
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