

SYSTEMATIC ZOOLOGY
Minot State University
BIOL 340, Fall 2009

Cyril Moore Science Center 213
MWF 2-12:50

Text: supplied weblinks at
http://www.minotstateu.edu/biology/beachy_01.shtml

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This is a course about the Animalia. The most impressive thing about animals is their diversity. There are more currently recognized species in Animalia than in any equivalent taxon. Animals possess a diverse array of specializations, more spectacular than in any equivalent taxon. They range from microscopic (living between grains of sand) to fantastically large (dinosaurs and blue whales), and animals collectively occupy more habitats than any other equivalent taxon (except for the bacteria).

For all their diversity, animals are united by several features: multicellular, eukaryotic, lacking cell walls (which may or may not be a derived feature), and (usually) being heterotrophic. While the animals are the one trophic group that ecology does not need, there is a consensus that their incredible diversity has created (and is creating) an ecology that fostered (and fosters) more diversity for the trophic levels that animals depend on. Without animals, the world would only be producers and decomposers. And there would be fewer of them, they would possess fewer interesting characteristics, and the world would be a rather dull place.

Date	Topic
26 Aug	BACKGROUND MATERIAL Systematics? Who cares? A case study of tetrapod taxonomy
28 Aug	What life does I: general cell/organ themes
31 Aug	What life does II: development and life cycles
2 Sep	What life does III: locomotion
4 Sep	What life does IV: ecology and adaptive zones
7 Sep	* * * Labor Day -- No lecture * * * THE TAXA
9 Sep	Sponges
11 Sep	
14 Sep	Cnidarians
16 Sep	
18 Sep	
21 Sep	
23 Sep	

25 Sep	EXAM 1
28 Sep	Annelids
30 Sep	
2 Oct	
5 Oct	Molluscs
7 Oct	
9 Oct	
12 Oct	Arthropods
14 Oct	
16 Oct	
19 Oct	
21 Oct	
23 Oct	EXAM 2
26 Oct	
28 Oct	
30 Oct	
2 Nov	Echinoderms
4 Nov	
6 Nov	
9 Nov	Chordates
11 Nov	*** Veterans' Day -- No lecture ***
13 Nov	EXAM 3
16 Nov	
18 Nov	
20 Nov	
23 Nov	
25 Nov	
27 Nov	*** Thanksgiving Holiday -- No lecture ***

30 Nov

2 Dec

4 Dec * * * No lecture * * *

7 Dec

9 Dec

11 Dec

17 Dec * * * Exam 4 and Final Examination -- 12:00 * * *

REMARKS ABOUT CONTENT, NECESSARY TOOLS AND GOALS

This course is about (1) the diversity of animal life and (2) how we use it to interpret the history of life. It requires an understanding of how we infer genealogical relationships (or “phylogeny”) and use this information to understand how characteristics unique to certain groups originate, cause diversification and speciation, and disappear (or “extinction”).

There is much content in this course. While strict memorization may prove successful, underlying the underlying tenet of evolution and how we reconstruct evolutionary history is an easier method (and it’s much more interesting). However you approach the material, there is simply no substitute for knowing every name and taxonomic level. (Some of you have taken Syst. Bot., so this ought to be easy.)

When the course is complete and the years have passed, you probably will not recall all the taxonomy, but you should remember the innovations in bauplan (german for “body plan”) that characterize the transitions from one branch of phylogeny to the next.

POINTS AND GRADING

I. Written exercises: 5 @ 100 points	500 points
III. Paper: rough draft @ 50 points	
Final draft @ 50 points	100 points
IV. Laboratory points	200 points
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TOTAL	800 points

The total number of points that you earn will be divided by 800, multiplied by 100 and given a letter grade according to the following scale.

90-100% = A

80-89% = B
70-79% = C
60-69% = D
<60% = F

The paper

You are to create an “annotated bibliography” of several important works (papers, books, etc.) of an important figure in the history of systematics and/or zoology. This bibliography is designed to get you to do additional readings, read the primary literature (a textbook is usually considered as secondary literature), and become familiar with some of the historical figures in Biology.

This assignment will require diligent library work, e.g., reading, database searching, and interlibrary loan. See below for details concerning this paper.

GENERAL POLICY

Attendance at all lecture is simply expected. You are also expected to keep up with the reading material. I can tell if you are doing so by the level of your participation in lecture, i.e., your questions and your responses to my questions.

While all students have different study methods, taking clear notes and spending sufficient preparation time (e.g., reading the text, studying and rewriting notes, etc.) have always been very successful. Presence and participation at lectures is simply the best way of acquiring and assimilating the ideas that are central to this class.

Finally, arriving at lecture on time (or preferably ahead of time) is courteous. This act is always well-appreciated, and its rewards are immediate and long-lasting. (The opposite is also very true.)

WEBSITES THAT WE WILL USE AND ARE VERY USEFUL (and cool, too!)

<http://phylogeny.arizona.edu/tree/phylogeny.html>

<http://www.ucmp.berkeley.edu/exhibit/phylogeny.html>

Both are very up-to-date websites that have a great deal of information that is supplemental to the text. The phylogenies they present are very good and kept up with new information. The Berkeley site is easier to read, but the Arizona site is more technically correct. For this course, being “technically correct” is important.
