LECTURE EXAMINATION #1

Invertebrate Paleontology

September 22, 2016 [This test is due at 9:20 a.m.]

1. Preservation! One of our first topics in this course. Your job here is to DRAW the differences between an **internal** and **external mold**. You can draw these in many ways, but your diagrams must be fully labeled and show that you indeed know the differences between the two modes of preservation. [7 points]

2. Taxonomic names are the language of systematic paleontology and biology. If you decide to name a new fossil, briefly *describe* (don't just list) <u>three</u> ICZN requirements you must meet before that name is considered valid. Assume that this fossil really is new. [9 points]

3. Identify, define and/or describe any **three** of the following terms. Be sure to include **dates**, **examples** and **diagrams** where appropriate. When possible, mention any special significance for paleontology. [15 points total]

polyphyletic

sessile benthic epifaunal filter-feeder

Archaeocyatha

rugae

coenosteum

4. Fill in the blanks! [10 points total]

Preservation mode where minerals are added to a porous skeleton: _____

Life mode of an organism suspended or floating in the water: _____

Kingdom of single-celled eucaryotes: _____

Cnidarian class with no medusae: _____

Scleractinian skeletons are made of this mineral:

5. What is **evolutionary convergence**? Please give at least one example and then tell me why this can be a problem when identifying fossils and interpreting evolutionary lineages. [9 points]

6. Please label all the parts of the fossil skeleton below and answer the following questions. [9 points]



What was the original mineral that composed this skeleton? _____

What is the formal name for the **Family** to which this fossil belongs?

Is this family ever found in solitary form? (Circle YES or NO)

7. Why is the **leucon** grade of sponge the most efficient filter-feeding type of its phylum? I expect you first to describe this grade (using a diagram) and then tell me why it is better for filtration than the other sponge grades. [6 points]

8. This question is too good not to use again. Please draw below a cross-section of a living sponge wall, showing and labeling all the cell types and other structures. Indicate the inside and outside of the wall. [10 points total]

9. What is **ecophenotypy**? Please give a definition and at least one example. [6 points]

11. Forams! This should be simple considering all we've done in class and lab. Please draw lines connecting each taxonomic name on the left with its proper description on the right. [10 points]

Fusulinids	Agglutinated test wall.
Miliolids	Granular calcareous test; usually football- shaped; relatively large.
Globigerinids	Imperforate calcareous test; appears like porcelain.
Rotalids	Perforate; globular chambers.
Textularids	Perforate calcareous test; sometimes translucent; some are large.