Study guide for homework quiz on the comparative method. This will be tested as a homework quiz allowing multiple attempts and unlimited time.

1. How is the graph correlating body mass and home range also using the comparative method?

2. Film:

a. What is a phylogenetic tree?

b. The word parsimony is used in the film. What does parsimony mean?

c. Did the molecular phylogeny for whale evolution agree with the structural one based on ear and tooth anatomy?

What bone was used to reconstruct whale phylogeny? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How was the controversy about whale phylogeny resolved?

d. Are whales more related to mesonychids, or artiodactyls? . How do you know?

e. The living species most closely related to whales are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

f. What did Woese’s work reveal about relationships among the prokaryotes?

g. What is lateral or horizontal transfer?

h. What was being attempted in 2001 by building phylogenies of *Anthrax* strains?

3. What question is being asked about spider webs and has looking at spider phylogeny helped to answer that question.

4. What does it mean for a phylogeny to have strong environmental or historic “signal?” Be able to describe examples of phylogenies that show both types of signals.

5. a. Are phylogenies independent? b. How can assuming independence lead to overstatements of significance?

6. How does Felsenstein’s method attempt to avoid overstatements of significance?

7. Summarize the ways phylogenies have been used in medicine and conservation.

a. SARS

b. HIV

c. Libya

d. Most bang from your buck. Be able to choose among river basins with regard to diversity.

e. Currency and conservation (second page): How is currency value determined?

f. Tough conservation choices (also view movie): How do diversity considerations change our ideas on plant function and productivity?