

Study Guide for Biology 1413: Zoology

Exam IV

This is a guide to HELP you prepare for the Exam. It is not the exam. It doesn't include all the material that might be on the exam. It is only a guide to help you assess how well you have prepared for the upcoming exam. Do not waste the majority of your study time "looking up the answers" to these questions and then studying only them - you might do good if any of these questions happen to appear on the test, but you will miss everything else that we might also have talked about.

The best way to study for any exam is to take good lecture notes and then study the heck out of them; make your own outlines, make up your own questions, etc. Once you feel you know the material then see if you can answer these questions. If you can't answer them all then put these away and go back and study some more - you don't know the material well enough yet. If you can answer them all, then you probably also know most of the *other* material that will be in the exam as well.

1. What are the differences between **protostomes** and **deuterostomes**? Name two phyla of each.
2. List and describe the distinctive characteristics of each.
3. How is the skin of echinoderms similar to the skin of vertebrates? What are the main differences?
4. What is a water vascular system, describe its general structure, what is its general function, and how does it differ in each of the major groups of echinoderms.
5. What organs are used for respiration in the echinoderms.
6. Compare the general ecology & feeding habits of members of each class of echinoderms.
7. Describe the role of echinoderms in general ecology of the marine environment and in the human economy.
8. Define the following terms: **pentamerous radial symmetry, endoskeleton, dermal branchiae, pedicellariae, oral and aboral surfaces, ossicles, test, madreporite, ambulacral groove, bipinnaria larva, Aristotle's lantern, cloaca, respiratory tree, evisceration**
9. List and describe the 5 major identifying characteristics for the phylum Chordata
10. Name and describe the three major subphyla of the phylum Chordata.
11. Why are tunicates called that?
12. What distinguishes the vertebrates from the other two subphyla of chordates?
13. How is the skin of vertebrates different from the skin of most other invertebrates (except echinoderms), be specific?
14. Except for the Echinoderms, in what major ways do the nervous system and the circulatory system of Chordates differ from most other major invertebrate groups?
15. List the major classes of vertebrates and describe the most distinctive and/or unique characteristics of each.
16. What specific characteristics do the three "fish" classes have in common? How do each differ?

17. Describe the major changes in the heart and circulatory system among the vertebrate classes.
18. Describe the major changes in the brain among the vertebrate classes.
19. Compare and contrast the sense organs within each vertebrate class.
20. Describe some examples of major human impacts of each of the vertebrate classes.
21. Where did jaws come from and what is their advantage over agnathans?
22. Compare and contrast reproduction in Chondrichthyes and Osteichthyes.
23. Give some specific examples that illustrate how a fish's shape is related to how it lives.
24. What is the difference between the scales of fish and the scales of reptiles and birds?
25. Describe some specific examples that show how color, bioluminescence and electricity are used by fish.
26. Describe how buoyancy is maintained in both Chondrichthyes and Osteichthyes.
27. Describe the difficulties of salt/water balance in marine and in freshwater fish and how these problems are solved. Be specific.
28. Explain the statement; "lungs and limbs evolved for fish to be able to survive in water"
29. List the characteristics that the earliest amphibians shared with their fish ancestors.
30. Describe the different ways in which amphibians can get oxygen.
31. Briefly describe the two most common groups of amphibians.
32. Describe the main characteristics that distinguish reptiles from amphibians?
33. In what ways were dinosaurs different from most other kinds of reptiles, be specific?
34. Briefly describe and distinguish between the three of the major living groups of reptiles.
35. Describe some examples of how venom is used by amphibians and reptiles for feeding or protection.
36. Describe a specific example of a fish, an amphibian and a reptile that shows considerable parental care of its young.
37. In spite of the great diversity of birds they have an amazing similarity in structure since birds evolved as flying machines; describe the adaptations for flight in as many organ systems as you can.
38. Feathers are essential for flight in birds. What evidence is there that feathers did not originally function in flight and what other uses might they have served?

39. Both birds and mammals are warm blooded. What are the advantages and the costs or disadvantages of homeothermic metabolism.
40. Explain the statement; “teeth more than any other physical characteristic reveal the life habit of a mammal.”
41. Name, describe and give a specific example of each of the three patterns of reproduction in mammals.
42. Define the following terms: **notochord, endostyle, myotomes (=myomeres), endoskeleton, axial and appendicular skeleton, lateral line, ostracoderms, hagfish, conodonts, spiral valve, photophores, chromatophores, swim bladder, operculum, metamorphosis, keratin, hard palate, diaphragm, pectin, fovea, salt glands, horns, antlers, air capillaries, air sacs, alveoli**
43. Describe the characteristics of the most prominent species in the history of human evolution.
44. Describe some of the evolutionary “scars” or atavisms of our evolutionary past.
45. Are humans still evolving?
46. Why is the term “animal welfare” preferred over “animal rights”?
47. Why is it virtually impossible to completely avoid the use of animals or animal products in our daily lives?