**Laboratory 6: ZOOLOGY PART I: KINGDOM ANIMALIA - LOWER INVERTEBRATES**

*After completion of this laboratory session, and with 70% accuracy on the first laboratory quiz, the student should be able to:*

1. Describe the characteristic features of Kingdom Animalia
2. Explain the features and criteria for animal classification: level of organization, body symmetry, body cavity, embryological development, segmentation
3. Describe the distinguishing features of members of the phylum Porifera and the phylum Cnidaria
4. Describe the body forms of cnidarians
5. Describe reproduction of those species alternating between polyps and medusa
6. Compare the feeding methods of sponges and jellyfish
7. Describe the general morphology of flatworms
8. List characteristics that phylum Platyhelminthes has in common with phyla Porifera and Cnidaria
9. List characteristics of flatworms that are more advanced than those of more primitive phyla
10. List examples of each major class of flatworm.
11. Answer the review questions at the end of the exercises

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**Laboratory 7**: **ZOOLOGY PART II: KINGDOM ANIMALIA - LOWER INVERTEBRATES (CONTINUED)**

*After completion of this laboratory session, and with 70% accuracy on the first laboratory quiz, the student should be able to:*

1. Discuss anatomical characteristics that distinguish acoelomates, pseudocoelomates and coelomates
2. Discuss anatomical characteristics of cephalization and segmentation
3. Describe the general morphology of roundworms and rotifers
4. List characteristics present in roundworms that are more advanced than those of more primitive phyla
5. Describe the general morphology of organisms of the phylum Annelida and phylum Mollusca
6. List the characteristics that annelids and mollusks share with Platyhelminthes and Nematoda
7. Discuss the characteristics of annelids and mollusks compared to more primitive phyla
8. List examples of the major classes of annelids and mollusks
9. Answer the review questions at the end of the exercises

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**Laboratory 8: ZOOLOGY PART III: KINGDOM ANIMALIA - HIGHER INVERTEBRATES AND CHORDATES**

*After completion of this laboratory session, and with 70% accuracy on the first laboratory quiz, the student should be able to:*

1. Describe the general morphology of organisms of phylum Arthropoda.
2. List characteristics that arthropods share with the phyla studied in previous exercises
3. Discuss characteristics of arthropods that are advanced over more primitive phyla
4. List representative genera of the major classes of arthropods
5. Describe modifications of the exoskeleton and paired appendages of arthropods
6. Discuss embryological characteristics that distinguish protostomes from deuterostomes
7. Describe the morphology of organisms of phyla Echinodermata,
8. Describe the water vascular system of echinoderms
9. Describe the morphology and features of the Chordata (Urochordates, Cephalochordates and Vertebrates)
10. List characteristics that echinoderms and chordates share with phyla previously studied
11. Discuss characteristics of echinoderms and chordates that are unique or advanced compared to more primitive phyla
12. Discuss the evolution of vertebrates
13. Answer the review questions at the end of the exercise

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| **Live/ Fresh Specimen observed/dissected** | **Domain** | **Kingdom** | **Phylum/Group** | **Lab** |
| Hydra | Eukarya | Animal | Cnidaria | 6 |
| Planaria | Eukarya | Animal | Platyhelminthes | 6 |
| Rotifers | Eukarya | Animal | Rotifers | 7 |
| Clam | Eukarya | Animal | Molluscs | 7 |
| Earthworm | Eukarya | Animal | Annelids | 7 |
| Grasshopper | Eukarya | Animal | Arthropoda | 8 |
| Sea star | Eukarya | Animal | Echinodermata | 8 |
| Frog | Eukarya | Animal | Chordata | 8 |

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Phylogenetic Tree of Animals