Zoology 401 – Course Outcomes

By the end of the course, students will be expected to:

1. Identify and explain the morphological characteristics, including synapomorphies, of the major clades of animals (as shown in Dunn et al. 2014) and the well-supported clades of Bilateria, Deuterostomia, Protostomia, Spiralia, and Ecdysozoa.

2. Explain, compare, and contrast, and discuss the structure and function relationships found in different invertebrate groups for feeding, mechanics and movement, respiration, excretion, ionic and osmotic regulation, reproduction and lifecycles, and buoyancy, defense, development, and control systems (e.g., nervous systems).

3. Discuss invertebrate biology and ecology in the context of conservation problems, scientific investigation using model organisms, design, and environmental monitoring.

4. Use evolutionary trees to identify the relatedness of different invertebrate taxa, propose hypotheses for the evolution of traits, and discuss taxonomic implications.

5. Find, analyze, interpret, and discuss primary and popular literature, particularly graphs, tables, and figures, on topics in invertebrate zoology.

6. Scientifically observe live, preserved, and sectioned organisms in the form of scientific drawings and descriptions.

7. Use scientific record-keeping (e.g., accurate scalebars, labels, and identifications).

8. Use compound and dissecting microscopes, including slide preparation.

9. Dissect animals following provided protocols.

10. Observe and handle live animals with instruction.

11. Use reflective practices for continual improvement and growth (e.g., time management, self-directed learning and inquiry, an understanding of how you learn, confidence in taking risks and embracing challenges, independent problem solving, personal goal setting, collaboration with others, and professionalism).

12. Work effectively with teammates to learn and share knowledge about invertebrates.