University of Guelph
Learning Outcomes for the B.Sc. Honours Major in
Zoology (BSCH.ZOO)

The Zoology Major will allow you to study ecology, evolution, and physiology with a focus on the structure, function and ecology of animals. This program prepares students for post-graduate work in zoology and other life sciences, and provides a sound scientific background for students wishing to pursue careers in management and conservation, biotechnology and industry, education, and research either in government or private sectors.

A. GENERAL SKILLS

1. Problem Solving & Critical Thinking

- Critically evaluate ideas and arguments by gathering and integrating relevant information, assessing its credibility, and synthesizing evidence to formulate a position.
- Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and depth and breadth of knowledge/expertise.
- Accurately interpret and use numerical information to evaluate and formulate position.

2. Communication

- Accurately and effectively communicate ideas, arguments and analyses, to a range of audiences, in graphic, oral and written form.

3. Professional and Ethical Behaviour

- Demonstrate personal and professional integrity by respectfully considering diverse points of view and the intellectual contribution of others, and by demonstrating commitment to honesty and equity, and awareness of sustainability, in scientific practice and society at large.
- Collaborate effectively as part of a team by demonstrating mutual respect, leadership, and an ability to set goals and manage tasks and timelines.
- Plan for professional growth and personal development within and beyond the undergraduate program.

B. DEGREE RELATED SKILLS & KNOWLEDGE

1. Scientific Method

- Apply scientific methods and processes by formulating questions, designing investigations and synthesizing data to draw conclusions and make scientifically-based decisions.
- Generate and interpret scientific data using quantitative, qualitative and analytical methodologies and techniques.

2. Breadth & Depth of Understanding in a Particular Scientific Discipline

- Apply the core concepts of math, physics, chemistry and biology to a chosen scientific discipline.
- Demonstrate knowledge of the ethical, economic, commercial and social implications of scientific discovery and technological innovation.
- Interpret current scientific concepts and gaps in knowledge (and methods) in light of the historical development of a chosen discipline.

- *Demonstrate a broad understanding of animal diversity, including knowledge of the scientific classification and evolutionary relationships of major groups of animals.*
- *Recognize the relationships between structure an function at different levels of biological organization (e.g., molecules, cells, organs, organisms, populations, species) for the major groups of animals.*
- *Characterize the biological, chemical, an physical features of environments (e.g., terrestrial, freshwater, marine, host) that animals inhabit.*
- *Explain how animals function an interact with respect to biological, chemical, an physical processes in natural and impacted environments.*

3. Scientific Technology & Techniques in a Scientific Discipline

- Apply contemporary research methods, skills and techniques to conduct independent inquiry in a chosen scientific discipline.
- *Collect an assemble biological data an apply mathematical an statistical methods to the interpretation of data to address questions in zoology.*
- *Demonstrate an advanced understanding an appreciation of living animals an specimens in field and/or laboratory settings through "hands on" experience including*
    - *Identify and/or quantify the external an internal characteristics of animals (e.g. microscopy, physiology)*
    - *collect an handle animals (e.g. netting, trapping)*
    - *determine the taxonomic affiliation of animals (e.g. using morphological keys and molecular tools).*

Note: Italics indicates major specific outcomes; non-italics indicate BSc learning outcomes.