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**Biodiversity (BSCH.BIOD) cont’d**

**Marine and Freshwater Biology (BSCH.MFB) cont’d**

**Wildlife Biology and Conservation (BSCH.WBC) cont’d**
2. Breadth & Depth of Understanding in a Particular Scientific Discipline
- Apply the core concepts of mathematics, physics, chemistry, and biology to Biodiversity.
- 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 Biodiversity.
- Evaluate the origin, distribution, and challenges of biodiversity at various spatial and temporal scales.
- Summarize examples of how changes in biodiversity have economic and social impacts through the provision of ecosystem goods and services.
- Apply critical thinking, analysis, and independent inquiry skills to complex interdisciplinary issues in biodiversity, recognizing the inherent complexity and uncertainty in its assessment.
- Synthesize knowledge and effectively communicate in both written and oral forms about a specific biodiversity issue in society.

3. Scientific Technology & Techniques in a Scientific Discipline
- Apply contemporary research methods, skills, and techniques to conduct independent inquiry in Biodiversity.
- Quantify variation within and among taxa and implement sampling methods and analyses utilizing data from real collections or surveys in biodiversity research, including expertise in specific taxonomic groups of interest.
- Work collaboratively with peers in community-engaged research to propose, execute, and report on a biodiversity issue.

2. Breadth & Depth of Understanding in a Particular Scientific Discipline
- Apply the core concepts of mathematics, physics, chemistry, and biology to Marine and Freshwater Biology.
- 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 Marine and Freshwater Biology.
- Demonstrate an understanding of the structure, function, and evolutionary relationships of the major taxonomic groups of (aquatic organisms).
- Characterize and integrate the diversity of biological, chemical, and physical features that structure (marine and freshwater aquatic environments).
- Understand how natural and impacted (aquatic systems) function and interact with other systems.

2. Breadth & Depth of Understanding in a Particular Scientific Discipline
- Apply the core concepts of mathematics, physics, chemistry, and biology to Wildlife Biology and Conservation.
- 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 Wildlife Biology and Conservation.
- Demonstrate a broad understanding of ecology, evolution, and conservation biology.
- Recognize the origins and current methods of protection of plant and animal diversity.
- Develop detailed knowledge of ecological and evolutionary factors that influence the persistence of species and communities.
- Understand how to manage natural and impacted systems (e.g., invasive species, species at risk) and apply scientific approaches to adaptive management strategies in wildlife conservation.
- Assess the complex interplay between science, socioeconomic factors, and public opinion in the forging of public policy decisions and the value of interdisciplinary approaches to understanding complex problems in wildlife biology.

3. Scientific Technology & Techniques in a Scientific Discipline
- Apply contemporary research methods, skills, and techniques to conduct independent inquiry in Marine and Freshwater Biology.
- Collect and assemble biological data and apply mathematical and statistical methods to the interpretation of data to address questions in ( aquatic) biology.
- Demonstrate an advanced understanding and appreciation of living (aquatic organisms and specimens) in field and/or laboratory settings through “hands on” experience including:
  - Identify and/or quantify the external and internal characteristics of organisms (e.g., microscopy, physiology)
  - Collect and handle organisms (e.g., netting, trapping)
  - Determine the taxonomic affiliation of organisms (e.g., using morphological keys and molecular tools)
- Gain “hands on” experience in the field working with plants and animals in a variety of ecosystems.
- Develop written and oral communication skills for a variety of stakeholders (e.g., public, private sector, policy makers, scientists).
- Assemble, analyze, and evaluate biological data for development and execution of a research project that integrates methods from evolutionary biology, ecology, and conservation biology within wider global contexts.
Zoology (BSCH.ZOO)

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 a depth and breadth of knowledge/expertise.
   • Accurately interpret and use numerical information to evaluate and formulate a 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 a 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 mathematics, physics, chemistry and biology to Zoology.
- 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 Zoology.
- 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 and 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, and physical features of environments (e.g., terrestrial, freshwater, marine, host) that animals inhabit.
- Explain how animals function and interact with respect to biological, chemical, and 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 Zoology.
- Collect and assemble biological data and apply mathematical and statistical methods to the interpretation of data to address questions in zoology.
- Demonstrate an advanced understanding and appreciation of living animals and specimens in field and/or laboratory settings through “hands on” experience including:
  - identify and/or quantify the external and internal characteristics of animals (e.g., microscopy, physiology)
  - collect and handle animals (e.g. netting, trapping)
- determine the taxonomic affiliation of animals (e.g. using morphological keys and molecular tools).