

# BIOLOGY - ECOLOGICAL (BIOE)

## **BIOE 172N - Introductory Ecology. 3 Credits.**

Offered autumn. An introduction to ecological principles, stressing the structure and function of natural communities and examining human's role in these ecosystems.

Gen Ed Attributes: Natural Science Course (N)

## **BIOE 342 - Field Ecology. 5 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOB 272 and one year of college math, including statistics. The principles and practices of the study of animals and plants in their natural environments, including human influences, with focus on the Crown of the Continent area of the Rock Mountains and taught entirely outdoors.

## **BIOE 370 - General Ecology. 3 Credits.**

Offered autumn. Prereq., BIOB 272. Analysis of the distribution and abundance of plants and animals. Includes individual, population and community-level processes (e.g., population growth and regulation, competition, predation, succession, nutrient cycling, energy flow and community organization).

## **BIOE 371 - Gen Ecology Lab (equiv to 271). 2 Credits.**

Offered autumn. Prereq. or Coreq., BIOE 370 and either STAT 216 or WILD 240. Methods of describing and testing alternative explanations for patterns in nature. The use of scientific methodology in ecology.

## **BIOE 394 - Seminar/Workshop. 2 Credits.**

Offered autumn. Preparatory readings and attendance at seminars on a wide variety of ecological and wildlife management topics followed by critiques.

## **BIOE 403 - Vert Design & Evolution. 5 Credits.**

Offered spring. Prereq., BIOB 170N, 171N and 272 and either PHSX 205N/206N or 215N/216N. Evolutionary patterns of animal morphology and the importance of body size on life history patterns. Phylogenetic study of major extant and extinct vertebrate groups. Laboratory includes systematic study of organ systems and workshops in experimental functional morphology.

## **BIOE 406 - Behavior & Evolution. 3 Credits.**

Offered autumn. Prereq., BIOB 272. Diversity of animal behavior in an evolutionary context including inheritance of behavior, diets, avoidance responses, mating systems and sexual selection, parental care, and evolution of animal groups and societies.

## **BIOE 409 - Behavior & Evolution Discussion. 1 Credit.**

Offered autumn. Co-req., BIOE 406. Diversity of animal behavior in an evolutionary context including inheritance of behavior, diets, avoidance responses, mating systems and sexual selection, parental care, and evolution of animal groups and societies. This discussion course complements the lectures of BIOE 406 by examining both landmark and recent literature. It also includes a written component.

## **BIOE 416 - Alpine Ecology. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371. Distribution, abundance and life cycles of plants and animals and their unique ecophysiological adaptations to life in the rigorous environments of the high mountains above the timberline, with emphasis on the Crown of the Continent area.

## **BIOE 428 - Freshwater Ecology. 5.000 Credits.**

Offered spring. Prereq., BIOB 160N and either CHMY 123N or 143N. Physical and chemical dynamics of lakes and streams. Diversity, distribution and dynamics of freshwater organisms.

## **BIOE 439 - Stream Ecology. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371, CHMY 121N. The biota and biogeochemical processes of running waters with unifying principles and contemporary research approaches.

## **BIOE 440 - Conservation Ecology. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371. Concepts and approaches for sustaining biodiversity and other natural goods and services provided by terrestrial and aquatic systems.

## **BIOE 447 - Ecosystem Ecology. 3 Credits.**

Offered even years. Prereq., BIOB 160N and any ecology-themed course or consent of instr. Introduction to systems thinking and the ecosystem concept, review of water and energy balances, carbon cycling, nutrient cycling, trophic dynamics, and species effects on ecosystem functioning across terrestrial and aquatic ecosystems.

## **BIOE 448 - Terrestrial Plant Ecology. 4 Credits.**

Offered alternate autumn. Prereq. BIOB 272. The interrelationships between plants and plant communities and their natural environment.

## **BIOE 449 - Plant Biogeography. 3 Credits.**

Offered intermittently. Prereq., consent of instr. Description of the distribution of plants and animals at global, continental and regional scales. Analysis of ecological and historical factors influencing distribution and association.

## **BIOE 451 - Landscape Ecology. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371. Biophysical processes that determine landscape and ecosystem structure and function using remote sensing tools, geographic information systems and dynamic models to demonstrate landscape change.

## **BIOE 453 - Ecology of Small & Large Lakes. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371, CHMY 121N and CHMY 123N. The physical, chemical and biological characteristics of lake ecosystems with an emphasis on nutrient cycling, food web interactions and water quality.

## **BIOE 458 - Forest and Grassland Ecol. 3 Credits.**

Offered summers only at Flathead Lake Biological Station. Prereq., BIOE 342 or BIOE 370/371. Patterns and processes of the forests and grasslands of the northern Rocky Mountains in the context of principles of population community and ecosystem ecology.

## **BIOE 490 - Adv Undergrad Research. 1-10 Credits.**

(R-10) Offered every term. Prereq., junior or senior standing and consent of instr. Independent research under the direction of a faculty member. Graded credit/no credit.

## **BIOE 594 - Seminar. 1-4 Credits.**

(R-12). Offered intermittently. Prereq. graduate standing. Presentations by student, faculty, and associates on issues and topics in their field.