

# Minnesota State University Moorhead

## BIOL 402: Principles of Animal Behavior

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites:

BIOL 341 - Genetics AND BIOL 345 - Principles of Ecology

Corequisites: None

MnTC Goals: None

The genetic, ecological, evolutionary and physiological aspects of animal behavior including the historical background, kin selection, communication, aggression, navigation, and reproductive behavior. With lab.

**B. COURSE EFFECTIVE DATES:** 06/01/1995 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Animal Behavior as a synthesis of Ethology and Comparative Psychology
2. Proximate and Ultimate Causation, Tinbergen's four questions and the evolution of behavior
3. Behavioral genetics
4. Behavioral ecology
5. Learning
6. Neuroendocrine-mediated behavior, biological clocks
7. Orientation, migration
8. Foraging behavior
9. Antipredator behavior
10. Sexual selection
11. Mating systems and the distribution of resources
12. Evolution of patterns of parental care
13. Kin selection and the evolution of altruism
14. Contests, aggression and resource holding potential
15. Evolution of communication, communication networks, signal design
16. Human behavior
17. Labs are based on hypothesis-driven experimental approaches to the study of animal behavior: Releaser-induced recognition learning in minnows (lab expt); Foraging behavior by granivores at the regional science center (field expt); Search images in chicks (lab expt); Lekking behavior in greater prairie chickens (field expt); Dominance hierarchies in fiddler crabs (lab expt); Independent research project of the students; own design (lab or field expt)

**D. LEARNING OUTCOMES (General)**

1. Students will understand animal behavior from an evolutionary perspective, and as an integration of multiple aspects of the animal's ecological interactions.
2. Labs model the independent projects that each student designs, implements and interprets. In this course students learn how to be an animal behaviorist.
3. The primary literature is used as the text to introduce students to current developments in the field and to gain experience in interpreting animal behavior the way animal behaviorists communicate their findings to other animal behaviorists.
4. Labs emphasize the quantitative study of animal behavior using well-controlled experiments, conclusions drawn from statistical inference, and manuscript writing in standard scientific format.

**E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted