

I. OVERVIEW:

This first section will help you get started with the three of the four major means of interacting during the semester: 1) your TA, 2) discussion sections, and 2) your journal. The fourth, the **Bio_45 web discussion** is coming soon via WebCT. It will also help you get started with recording data on animal behavior.

For practice on observing, we will watch a short video of bison behavior. This video contains a single short behavior sequence that you will watch and take notes on. Be sure to **bring your journal to write in during section**. You will compare your notes with those of other students watching the same video and then with the descriptions of the person who made the video. A major problem in behavioral studies is inter-observer reliability. Each of us sees slightly different things or describes them in different ways. As a result, there has been considerable emphasis in animal behavior on identifying, describing, and naming behavioral units.

II. READINGS & ASSIGNMENT:

1. Read the "Journal Basics" and "Journal Exercise #1" handouts carefully.
2. Try to do a lot of behavior observations around campus. Think about your observations relative to the information below.
3. Explore the web site and send your TA some e-mail before section. If you have no experience in accessing the web, try to find someone to help you

III. OVERVIEW OF BISON VIDEO:

The video was made by Prof. Dale Lott of U. California. He has spent many years studying various aspects of bison behavior. The video is about interactions between males. We will only see a short segment and it will be up to you, as individuals and as a group, to figure out what is going on in this sequence. We will watch the sequence three times without sound. The first time just get orientated to what is going on. Figure out which animals to focus on.

The second time take notes on the behaviors you see. That will be followed by a group discussion and comparison of observations. Once you have discussed what you saw, we will watch the sequence again. You should polish your notes and see if there are any details that were left out of your previous observations. Once the class is ready, we will play the sequence one last time with Prof. Lott narrating. You might be surprised by what you noticed or how much you missed.

There are two ways you can describe a unit of behavior -- **functionally and empirically**. Functional descriptions equate actions with purpose (e.g., courting, fighting, being submissive). Empirical descriptions focus on movements and posture with no interpretation (e.g., bobbed head and snapped beak open and closed, or stiff legged and hair along spine erected). In your journals and in watching the video you should **emphasize empirical descriptions**.

Each unit of behavior needs to be exclusive (distinguishable) from all others. Such well defined units allow different people make observations of the same species and produce data can be shared. **Ethograms**, the descriptive set of behaviors for an organism, are the first step in doing rigorous and quantitative behavioral studies. The same applies for your journal.

We often test hypotheses in behavioral ecology by deciding what behaviors each competing hypotheses predicts and then collecting behavioral data to see which prediction holds. Anecdotes will not suffice for this. We often use quantitative data on the absolute or relative **duration** or **frequency** of certain behaviors in various contexts. Thus another goal of an ethogram is to divide the behavior of an animal into units that can either be timed or counted. We can then ask, for example, how long different animals spend doing a behavior (e.g., grooming) based on which other animals are present. On other occasions we might want to know how often some event happened per observation period or in each of several different contexts. For example, do sparrows chirp more often at night than during the day?

As you watch different animals and focus on the details of their behavior, think about the kinds of information that would be easiest and most difficult to sample. You will come to realize that an

essential first step in studying animal behavior is determining just what kind of data you can collect from a particular species or what kind of questions you can most easily address for a certain animal.

In your early observations, you will encounter a major dilemma. How can you tell what functional description to give to a behavior? Are you sure that when a duck dips its bill in the water and moves it around that you should call it drinking? Perhaps it is a social signal or maybe it just put its head down and the water got in the way. What seems a simple task, assigning purpose to behaviors, turns out to be quite difficult and loaded with possible biases. Go over your own journal observations and see if you associated certain behaviors with males or females. Did you know the sex and assume the function of the behavior or assume the function and then the sex -- were you completely objective? **Share some of your experiences with the class!**

IV. ANIMALS ON THE BROWN CAMPUS -- PLACES AND CAST OF CHARACTERS

A. Good watching areas on campus

This information has moved top the **Bi0 45 Web Site**. Look for it there.

B. Some common campus animals -- more animals and details are on the web site

Pigeon -- excellent subjects for distinguishing individual animals (based on feather colors) - no obvious difference between sexes - best animals for seeing a full range of behavior.

House sparrow -- "little brown birds" --male has black bib -- this time of year there are also immatures who look like females. Very "flighty" watch from afar.

Gray squirrel -- you can learn to distinguish sexes and individuals - what about that tail??

Dogs -- often hard to see much besides dog-owner interaction which we are not interested in. Watch for dog-dog interactions (some of them involve only one dog...!). Look at posture and actions and watch out for anthropomorphism!

Wasps and bees -- In general, bees are orange-brown and fuzzy and wasps are bright yellow and black and shiny -- see Web Page for more details and pictures.

Ants -- focus on one individual and on interactions among individuals -- if you are lucky, you may see some with wings. Look close and you might see them mate or see the mated female drop her wings and find a niche to start digging in (founding a new colony)

Crickets -- observe with your ears! Listen for and describe different sounds (chirps and trills) you hear at night or during the day