



Welcome to Zoology 306 (Ethology) Lab!






Schedule for Today

- Introductions
- Review Syllabus
- Needed for this Course
- Brief Lecture:
  - Ethology/Ethograms/Flow Diagrams/Time Budgets
  - Types of Sampling
  - Hypotheses and Hypothesis testing
- Activities
- Analysis/ Figures
- NEXT WEEK!
- Research Projects!

Introductions

TA Introduction:

Nate Wehr
nwehr@hawaii.edu
Sherman 239
Thursday 8:30-10:30

Student Introductions:

- Stand Up
  - Name
  - Major
  - What you want to do in the future
  - Fun fact

Review Syllabus

- WRITING INTENSIVE
- Lab Reports
- Quizzes
- Attendance
- Independent Research
- No computers
- Grading Breakdown
- NO PLAGERISM: if you are unsure about plagiarism, always ask!

Needed for Course

<u>To be brought every class:</u>

- Lab Notebooks: will be randomly checked
- Lab Manual: your guide to the course
  - The back contains info on basic statistics as well as the rubrics for how we will be grading most of the assignments for the lab
- Homework from Previous Lab
- Pencil
- Readiness to learn!

Read The Lab Manual Before Class!

Ethology

- Ethology: the study of the proximate mechanisms and adaptive value of animal behavior

- Why is it important to study animal behavior?

- What is some awesome animal behavior you have seen/read about?

Types of Sampling

- State vs Event (State has extended duration: sleeping)
- *Ad libitum* sampling ("as you please" in latin)
- Focal sampling (one individual over fixed time)
- Scan sampling (multiple individuals)
- Instantaneous sampling (at given time intervals)
- Continuous sampling (throughout the whole time)
- Behavior/Sequence sampling (looking for specific behaviors, and relaying how behaviors relate)
- One-zero Sampling (in fixed time span was the behavior present, yes or no)

Types of Sampling Cont.

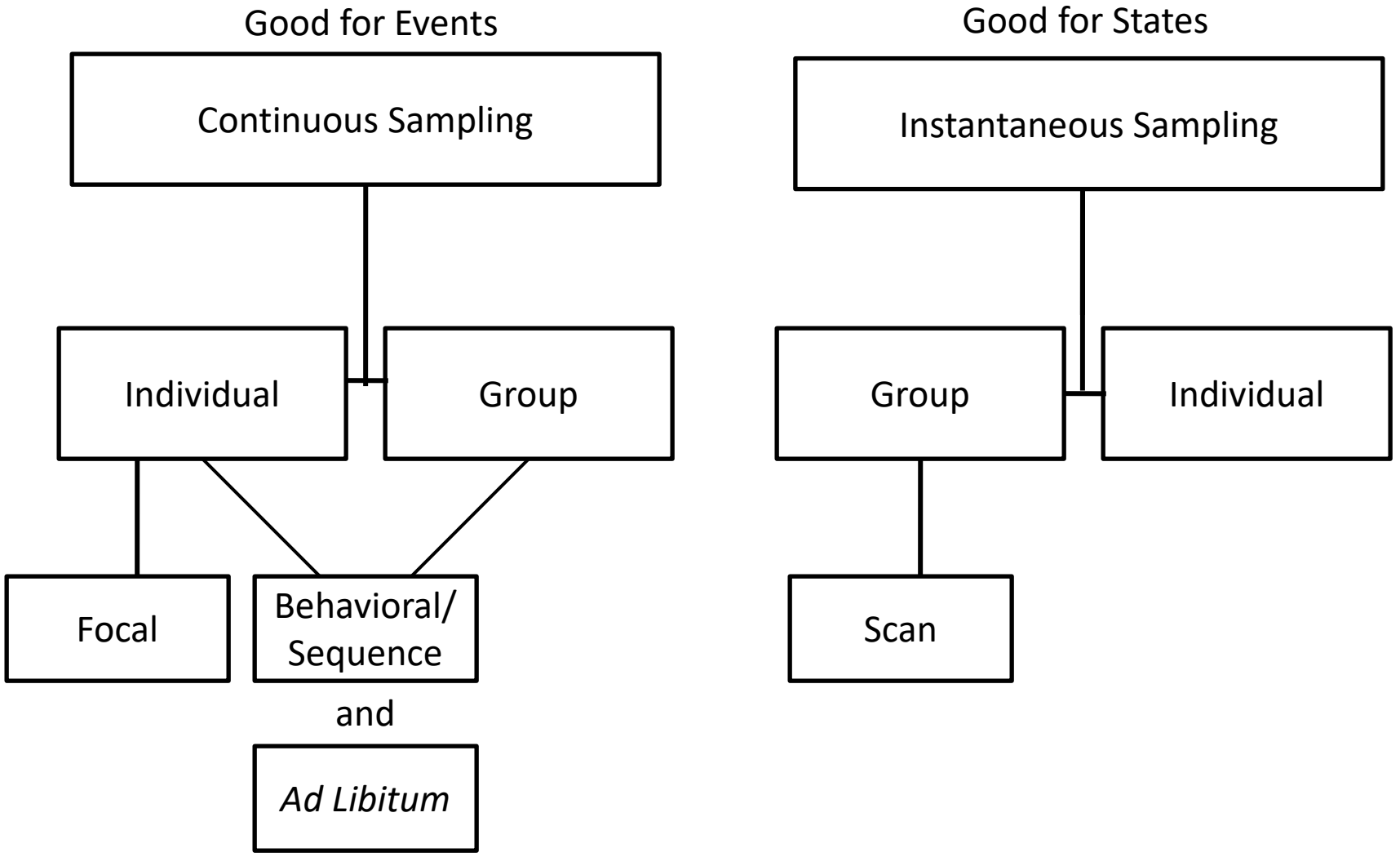


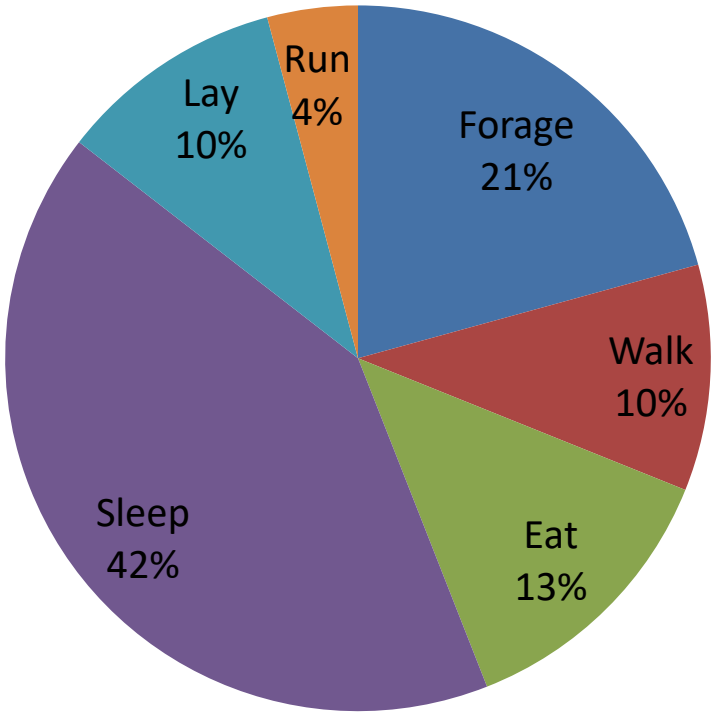
Table 1- Et(a) nic behaviors. * =
observed in

Behavior	
Turn	
Unobserval	

exploration

trail laying

Time Budget of Fictional Creature



Hypotheses and Hypothesis Testing

- What is the difference between a hypothesis and a prediction?

Hypothesis is a statement about how you understand the system to work based on background information

Prediction is what you think will happen in your experiment based on your hypothesis

Example: I hypothesize cardinals that have a genetic resistance to parasites have brighter plumage, which conveys higher fitness to females. Therefore, I predict that cardinals with brighter plumage will mate with more females than those with duller plumage.

- Psudoreplication: giraffe example (neck and walk cycle)

- Anthropomorphisms! Most of us grew up with Disney, so its a hard habit to break!

Activities

- Ethogram of Human Behavior
  - Inside, watch as partner drinks water, be specific in your ethogram! Practice for next activity!
- Ethogram of Dove Behavior
  - Outside, watch birds as they feed.
  - Afterward we come up with class hypothesis/prediction
- Focal animal sampling/ Event Frequency
- Instantaneous Scan Sampling/ Time Budget


Lets Get Started!

Analysis

All groups write results on the board! Copy down all group results into notebooks!

- Descriptive Statistics
  - Mean, median mode, standard deviation, bar graph, line graph, etc.

- Statistical tests
  - T-test, ANOVA, Chi-Squared, P-value and Alpha

Graph Types and Figures!

- Pie Charts – show percentages of whole.
  Ex= percent time of observation period
- Bar Graphs – compare means of continuous numerical measurements between categories.
  Ex= height differences of males and females
- Line Graphs – plots data points of continuous numerical data depending on numerical measurements.
  Ex= looking at relationship between height and weight

- Figure Legends: below images, pictures, and graphs
- Table Captions: above tables
- Legends and captions should allow reader to understand graph without reading the paper.

NEXT WEEK!

- Bring Lab Report and Paper Analysis to turn in at the start of next class. **Please print**, do not email!
- How to find scholarly sources
  - Google Scholar, Web Of Science, Ebscohost, Etc.
- How to read scholarly sources:
  - http://guides.library.manoa.hawaii.edu/biolabs/how-to-read-a-scientific-paper

<u>Week After Next</u>

- Zoo field trip: anyone want to meet us there?
- Bring sunscreen, hat, water, and umbrella as well as notebook and manual

<u>Week after that</u>

- Bee Lab: anyone allergic to bees?

Research Projects

- Check out previous experiments – do not copy! Use for inspiration only.
- Work in pairs on research projects
- Any manipulations must be done on invertebrates
- Anything with vertebrates must be observational only! (Example: Zoo, Aquarium, or Hanauma Bay)
- Topic, Title, and Hypothesis Due 2/9
- First Draft of Proposal due 2/16