animal behavior

In memorium,
1976-2007

Alex

animal behavior is..

a scientific discipline,
and...

what animals do!

Arguably, Animal Behavior sits at the very top of the biological hierarchy - an overarching discipline.

The behavior of an organism is the culmination of everything that has or is happening in that organism relative to biochemistry, development, genetics, physiology, etc.

what do animals do?

there is a large range from:

1. Simple reflexive responses to an environmental stimulus.

to

2. Complex patterns of activity in response to accumulated sets of subtle stimuli.

The animals that perform simple or complex behaviors themselves range in complexity from nematodes to primates!

Some scientific sub-disciplines associated with animal behavior:

- behavioral biology
- ethology
- neuroethology
- comparative psychology
- experimental psychology
- behavioral ecology
- behavioral physiology
- animal communication

we will touch on all of these in this course

The scientific study of animal behavior often relies on model systems.

Model systems have advantages and disadvantages:

+	-
large body of data on which to build	may ignore most interesting and informative organisms
many researchers with different expertise/approaches can work on a problem	resources may not be available to study less "sell-able" studies
examples: bird song, fiddler crabs	example: paddlefish

more on model systems:

Sometimes model systems get started for the wrong reason - typically convenience.

For example, every large university or medical school will have an animal care facility with rats and mice. So there is a ton of data on rodent behavior....

The problem with lab rats/mice: they are highly inbred and are raised and live in extremely non-natural environments.

How will we approach the study of animal behavior in this course?

- Mostly we will follow the text (Alcock; more on this in a moment), and use as examples some famous model systems and some rare and interesting cases too.
- Many movies and discussion
- Some guest lectures on selected topics, including methodology and (at the end of the course) and what is going on at the Oregon Zoo.

About your text:

+	-
very readable	very wordy
many examples	very often starts with mediocre example, then switches to a better one
emphasis on scientific hypothesis testing	overdone re: hypothesis testing!

A good strategy is to read the summary at the end of each chapter first. This way you know where the text is going. Otherwise it is often difficult to see the forest for the trees!

How the text is organized...

chapter	title (abbreviated)
1	evolutionary approach
2	proximate/ultimate causes bird song
3	development of behavior
4	control of behavior
5	organization of behavior

The first five chapters explain principles - how behavior comes about from a physiological, contextual and genetic perspective.

Chapters 6-14 present different types or categories of behavior

chapter	title	comment
6	behavioral adaptations for survival	mechanisms for defense and escape
7	the evolution of feeding behavior	foraging, prey capture
8	choosing where to live	dispersal, habitat selection, migration,territory maintenance, defense
9	the evolution of communication	animal communication (best stuff, imho)
10	the evolution of reproductive behavior	reproduction is key!
11	the evolution of mating systems	mating systems are a rich, interesting area
12	the evolution of parental care	defense against predators, parasites
13	the evolution of social behavior	complex!
14	the evolution of human behavior	sociobiology

The last six chapters can be themselves partitioned into "resource" behaviors and "reproductive" behaviors

chapter	resource	chapter	reproductive
6	behavioral adaptations for survival		
7	the evolution of feeding behavior		
8	choosing where to live		
9	the evolution of communication	9	the evolution of communication
10		10	the evolution of reproductive behavior
11		11	the evolution of mating systems
12		12	the evolution of parental care
13		13	the evolution of social behavior
14		14	the evolution of human behavior

A comment on the use of model systems in animal behavior research (and science in general)

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FILM 1: QUESTIONS ABOUT BEHAVIOR

You should know…

– what are the 4 questions
-- why are they important
-- if given a different behavior study scenario, be able to relate to one or more of the questions