

Behavioral ecology

Approaches to studying behavior

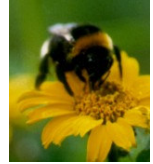
Who's who



Lars Chittka

University of London,
Queen Mary College
<http://www.biology.qmul.ac.uk/research/staff/chittka/chittka.htm>

Studies bees – mostly
Bombus terrestris, a
bumble bee



Interesting results: found social learning in bees; found that flower colors evolved to match bee vision, not vice versa; found that there is variation in learning and color preference traits within and across populations

References:

Advances in the Study of Behavior 36: 305-354
Current Biology 15: R869-R871

Some more admin

- Talk dates / topics
- Who's who: dates and whos
(let me know as soon as you know who you want to talk about – first come first serve, and no doubles!)

Your presentations

Think about the audience!

- Lecture is 1 hour 15 min: plan talk for 35 min
- Pick a topic that you are interested in
- Give general background as well as example studies
- Make slides
- Have discussion questions at the end

Your presentations

Think about the audience!

- Use large font or noone will know what you are talking about
32 28 24 20 18 16 14 12 10

Your presentations

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- Keep it brief on the slide – and no distractions!



Your presentations

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- Use large font or noone will know what you are talking about
32 28 24 20 18 16 14 12 10
- Keep it brief on the slide – and no distractions!
- Use other talks you hear as inspiration
- Think about the audience in your content: give sufficient explanations (no acronyms!) and make your topic interesting!

Suggestions for whos

- Stephen J Gould
- William (Bill) Hamilton
- Edward O Wilson
- Charles Darwin
- Robert Axelrod
- Ernst Fehr
- Mark Pagel
- Paul Harvey
- Robert Trivers
- David Stephens
- Alasdair Houston
- John Krebs
- Peter Berthold
- Mark Hauser
- Tim Clutton-Brock
- Richard Dawkins
- Lynn Margulis
- Peter Hammerstein
- Alex Kacelnik
- Geoff Parker
- John Maynard Smith

The study of behavior

Different subfields of 'behavior' today

- Comparative psychology
- Ethology
- Behaviorism
- Evolutionary psychology
- Behavioral ecology
- Neurobiology

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Attention: my subjective impressions...

The study of behavior

Different subfields of 'behavior' today

- Comparative psychology
- Ethology Model organisms; lab settings;
- Behaviorism learning, cognition; analogies to
- Evolutionary psychology humans/each other
- Behavioral ecology
- Neurobiology

The study of behavior

Different subfields of 'behavior' today

- Comparative psychology
- Ethology Model organisms; lab settings;
- Behaviorism learning, cognition; analogies to
- Evolutionary psychology humans/each other
- Behaviorism 'Blank slate'-ism; artificial situations
- Neurobiology

Different subfields of 'behavior' today

- Comparative psychology
- Ethology
- Behavioral neuroscience
- Evolutionary psychology
- Behavioral ecology
- Neurobiology

Proximate mechanisms of behavior, often incl. physiology; both field and lab situations

Different subfields of 'behavior' today

- Comparative psychology
- Ethology
- Behavioral neuroscience
- Evolutionary psychology
- Behavioral ecology

Ecol. context, constraints poorly understood; and fixed action patterns not enough!

Different subfields of 'behavior' today

- Comparative psychology
- Ethology
- Behaviorism → pretty much dead
- Evolutionary psychology
- Behavioral ecology
- Neurobiology

Different subfields of 'behavior' today

- Ultimate causes of human behavior, and how they have shaped proximate mechanisms.
- Behaviorism
- Evolutionary psychology
- Behavioral ecology
- Neurobiology

Different subfields of 'behavior' today

- Ultimate causes of human behavior, and how they have shaped proximate mechanisms.
 - Behaviorism
 - Evolutionary psychology
 - Behavioral ecology
 - Neurobiology
- Popular but seems radical to many – result: many poorly conducted studies, correlational

Different subfields of 'behavior' today

Ultimate reasons for behavior: field studies on many species; foraging, mating, competition, parasites

- Behaviorism
- Evolutionary psychology
- Behavioral ecology
- Neurobiology

The study of behavior

Different subfields of 'behavior' today

Ultimate reasons for behavior: field studies on many species; foraging, mating, competition, parasites

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Adaptationism; ignore proximate mechanisms and constraints; sexual selection in birds, over and over

The study of behavior

Different subfields of 'behavior' today

Neural mechanisms; model species; lab studies

- Behaviorism
- Evolutionary psychology
- Behavioral ecology
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The study of behavior

Different subfields of 'behavior' today

Neural mechanisms; model species; lab studies

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We don't understand much; extremely simple behaviors; extremely few species (3)

The study of behavior

Integrating subfields...

- **Proximate mechanisms** of behavior:
 - neurobiology, physiology
 - constraints: of design, evolutionary, developmental
 - parallels (convergent or homolog) between species
- **Ultimate causes** of behavior:
 - ecological context; actual measurement of fitness
 - comparative studies, niches
- **Variation between individuals** and its causes
 - role of learning, flexibility, 'higher cognition'

