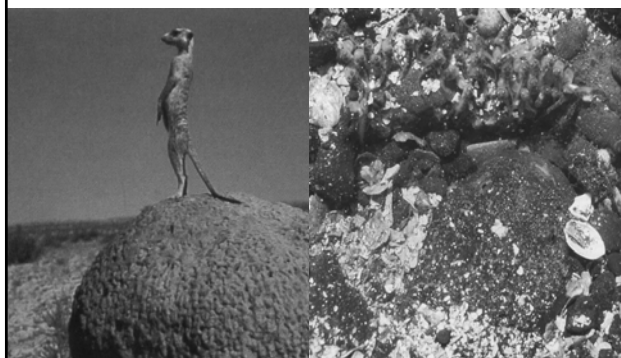


Behavioural Ecology

(Biology 4436G)



Dr. Bryan Neff

Collip 204: Come to see me to discuss course material, graduate school

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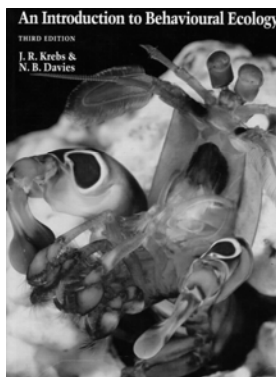
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Today

1. Textbook
2. Mark breakdown
3. Labs
4. Important dates
5. Group projects

Text Books

(recommended)



Mark Breakdown

- | | |
|---------------------|-----|
| 1. Project proposal | 10% |
| 2. Critique 1 | 5% |
| 3. Critique 2 | 10% |
| 4. Presentation | 10% |
| 5. Project report | 25% |
| 6. Final exam | 40% |

Important Dates

- 6 Jan: First class (form project groups)
- 8 Jan: Project discussion with Shawn Garner
- 9 Jan: SH 1310 for statistics lab and projects
- 16 Jan: SH 1310 project development and statistics
- 23 Jan: SH 1310 project development and statistics (optional)
- 27 Jan: Project proposal due (10%)
- 12 Feb: Critique 1 due (5%)
- 16 Feb: Reading week – no classes
- 10 Mar: Critique 2 due (10%)
- 17 Mar: Presentations begin in class and lab sections (10%)
- 6 Apr: Project reports due (25%)
- Final: Final exam in exam period (40%)

Labs

1. Labs are for conducting your projects.
2. You do not have to work on your project during the scheduled lab time – i.e. you can choose any time that is good with your partner.
3. However, Sarah Lee and Shawn Garner are usually readily available during the scheduled time.
4. Exceptions are: January 9, 16 & 23;
March 20 & 27

Group Projects

1. Study species may include:
 - (a) crayfish
 - (b) convict cichlids
 - (c) guppies
 - (d) snails
 - (e) squirrels
 - (f) humans

Tinbergen's Four Levels of Analysis

Four levels:

- | | | |
|------------------------------|---|---------------------------------|
| 1. Ontogeny (development) | } | <i>proximate or mechanistic</i> |
| 2. Causation (sensory-motor) | | |
| 3. Phylogeny (ancestry) | } | <i>ultimate or evolutionary</i> |
| 4. Adaptation (function) | | |

Crayfish



1. Pincher symmetry and aggression
2. Ho: Pincher symmetry does not affect the outcome of aggressive encounters
3. Ha: Pincher symmetry affects the outcome of aggressive encounters
4. Ha: Individuals with more symmetrical pinchers are more likely to 'win' aggressive encounters

Crayfish: confounding variables



1. Pincher size – ensure that the mean size of pinchers is equal; also control statistically (e.g. ANCOVA)
2. Body size – ensure that individuals have the same body length
3. Sex – ensure that individuals are of the same sex (use only one sex for all trials?)
4. Residence – ensure that neither individual has 'ownership' of conflict ring

Crayfish: to think about



1. What will a trial consist of?
2. What does it mean to "win" an aggressive encounter?
3. How will you store and feed each individual prior to a trial?
4. What data will you collect?
5. How will you analyze it?
6. Does it directly test your hypothesis?

Convict Cichlids

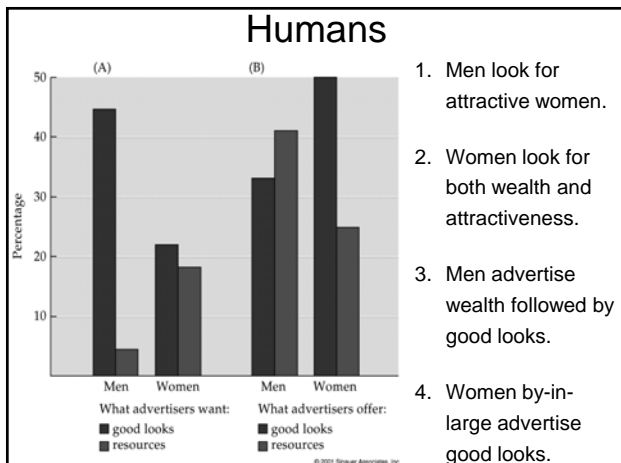


1. Paternity certainty and parental care
2. Ho: Paternity certainty has no effect on a male's parental care (effort)
3. Ha: Paternity certainty has an effect on a male's parental care
4. Ha: Males with higher certainty of paternity will provide a greater amount of parental care

Convicts: confounding variables




1. Males size and age
2. Male condition
3. Female size, age and condition
4. Brood size
5. Water temperature, light cycle, feeding rate



1. Men look for attractive women.
2. Women look for both wealth and attractiveness.
3. Men advertise wealth followed by good looks.
4. Women by-in-large advertise good looks.

Humans


How would you test this?



1. Off to the martini bar
2. Male or female approached unknown subjects and asked what they were drinking and if they could have a sip of it.
3. Male or female either dressed up or down.
4. Recorded proportion of successful responses. Other measures?

Humans

How would you test this?



1. Ho: Sex does not affect outcome of whether an unknown individual will share his or her drink (in a martini bar).
2. Ha: Sex does affect outcome of drink sharing.
3. Ha: Males will share their drink with a female more so than females with a male.

Humans

How would you test this?



1. Ho: Level of dress has no effect on the willingness of individuals to share their drink with an unknown recipient.
2. Ha: Level of dress does affect the willingness of individuals to share their drink.
3. Ha: Individuals are more likely to share their drink when the recipient is well dressed. (interaction with sex?)

Humans

TABLE 1 The reproductive success of individuals that engage in different kinds of social interactions

Type of interaction	Effect on reproductive success of	
	Social donor	Social recipient
Mutualism (Cooperation)	+	+
Reciprocity	+	+
Altruism	-	+
Selfish behavior	+	-
Spiteful behavior	-	-

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Humans



1. Group decided to go shopping, and test if sales staff were altruistic or selfish.
2. Visited both commission and non-commission based stores.
3. Either dressed up with several shopping bags or dressed down with a gym bag.
4. Recorded things like how long it took a sales person to approach, how helpful they were, etc.

Form Groups

1. Find a partner, 2 people per group
2. One of you should have a good grasp of statistics
3. Begin to discuss ideas; also see course outline
