

Animal Behavior (Ecol 487R/587R)

Final Exam Study Guide

The following study guide is meant to help you in your review for the final exam. It is NOT meant to be a comprehensive review of lecture material but should help you focus your study both on the primary concepts and on terms to know. The guide does not cover the readings. Be sure to know what animals are connected with various concepts and case studies. Remember also to review major concepts from lectures prior to the second exam.

NOTE: The final exam will differ from the midterms in not having a long essay. Otherwise the format will be identical.

Module 1: Mate Competition

1. Define sexual selection. How is it similar to natural selection? How is it different?
2. What are the two main mechanisms of sexual selection? Define each.
3. List the main forms of mate competition as listed in lecture. Know an example for each one.
4. Identify strategies of sperm competition. Give an example of each.
5. What ecological conditions favor pre-copulatory mate guarding?
6. Identify what is meant by alternative reproductive strategies. Give an example of each.
7. In what sense are mating strategies in side-blotched lizards like a game of rock-paper-scissors?
8. Why are males the sex that usually competes for mates and females the sex that is usually more choosy about mates? What is Bateman's principle? Give examples of role reversal in terms of mate competition and mate choice.
9. Identify some examples of convergent evolution in mate competition.

Terms to know:

sexual selection
mate competition
sperm competition
last male precedence
pre-copulatory/post-copulatory mate guarding
satellite males
alternative mating strategies
female mimicry
anisogamy
Bateman's principle

Module 2: Mate Choice

1. What is meant by direct benefits? Give examples. What is meant by indirect benefits? Give examples.
2. How can adaptive male suicide evolve, as it has done in the Australian redback spider?

3. What is meant by the 'good genes' hypothesis? Cite evidence in support of this hypothesis.
4. Is mate choice involving species recognition an example of direct benefits or indirect benefits? Why?

Terms to know:

mate choice
nuptial gift
puddling behavior
adaptive male sacrifice hypothesis
good genes hypothesis
Zahavi's handicap hypothesis
bright birds and parasites hypothesis

Module 3: Sexual Conflict

1. Describe the fruit fly experiment which provides the best experimental evidence in support of intersexual conflict.
2. Give examples of traits for which the interests of males vary from those of females? (For instance, fertilization efficiency).
3. Discuss some costs of mating. Give examples. Which sex is usually more likely to suffer these costs in order to mate more frequently? Why?
4. Sexual conflict can occur at any of three stages. What are these stages? Give example for each stage.
5. What are the criteria by which a case for sensory exploitation during mating can be made? Give examples of studies testing for those criteria. Did the study systems meet the criteria? Why or why not?

Terms to know

interlocus sexual conflict
sensory exploitation
traumatic insemination
accessory gland proteins

Module 4: Social Behavior of Paper Wasps (Dr. Michael Sheehan)

1. What does the 'paper' refer to in the name paper wasps?
2. Why do subordinate foundresses cooperate with the dominant foundress in raising brood?
3. How does the subordinate females' proportion of brood in a paper wasp nest vary with relatedness to the dominant foundress? Why does it vary in this way?
4. What trait is involved in management of conflict among foundresses?

5. Describe evidence that wasps have a kind of facial recognition as special as that of humans.
6. What is a quality signal? What constitutes high quality signal for *Polistes dominulus*? A low quality signal for the same species?

Terms to know:

facial recognition
Hamilton's rule
inclusive fitness
opportunity cost

Module 5: Parental Care

1. What is the difference between parental investment and parental care? Examples please.
2. How is care distributed in animals? Common? rare? Only in cognitively sophisticated species?
3. How can the tradeoff between current and future reproduction affect the expression of parental care?
4. Why do males tend to care less than females? What factors favor biparental care?
5. What is Trivers' explanation for the occurrence of parent-offspring conflict?

Terms to know:

parental investment
parental care
tradeoff
matriphagy
parent-offspring conflict
weaning conflict
tousling
siblicide

Module 6: Behavioral Ecology of Humans

1. In what ways do animals and humans behave similarly? In what ways are they different?
2. Identify a key prediction of the optimal diet model. Were conveyor belt experiments concordant with predictions in all respects? If not, why not?
3. How does direct reciprocity in primates like the cotton-top tamarin differ from indirect reciprocity as observed in humans?
4. How does sociobiology differ from evolutionary psychology?
5. What do evolutionary psychologists predict about the differences between mate choice in human males versus females?

6. What evolutionary process is more common in humans than in non-human animals? Why does this matter when interpreting the biological evolution of human behavior?
7. What was *2001: A Space Odyssey* director Stanley Kubrick saying in the quote on the last slide of this lecture? Consider its connection to what David Attenborough said about his time watching courtship in the birds of paradise of New Guinea?

8.

Terms to know:

sociobiology

reciprocity

indirect reciprocity

generalized reciprocity

spite

evolutionary psychology

cultural evolution

fads