

## Bio 45 -- Study Guide for Exam 2 – 6 November 2002

### I. Practice Exams on the web site:

Use the exam and answer key for 200 Exam #2. Use the exams to practice! Do not use it to predict the questions on the exam or the areas to be covered -- those vary from year to year and the questions change in subtle ways. The exam covers lectures 1-14 of part II of the course as well as readings for lectures and sections and all handouts.

### II. Other questions from the past

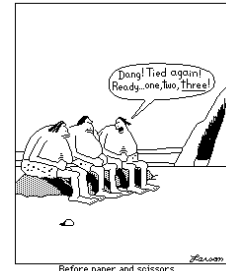
1. In Gary Larson's cartoon, the only tactic in the population is stone. You know of two other tactics (paper and scissors). In a world where these are all pure tactics and where the contests are symmetric, answer the following questions. You want to show me you understand game theory.

A. Fill in the rest of the pay-off matrix (2 win, -2 for a loss and 1 for a tie):

B. Explain: "For any pair of tactics (tactics = paper, stone or scissors) there can be no ESS where both tactics co-exist in the population."

C. But, Waage said in lecture that the ESS for paper, stone and scissors is that they all co-exist! Explain why they can coexist? **DESCRIBE THE DYNAMICS, DO NOT USE NUMBERS**

	STONE	PAPER	SCISSORS
STONE	1		2
PAPER	2		
SCISSORS		2	



2. There is disagreement in the communication literature over the question of exploitation of receivers by senders. Some people doubt that exploitative signaling can evolve within a species. Finish the following brief response to these people:

1. There is ample evidence of exploitation in communication between species, for example:

2. There is also evidence for exploitation signaling within a species, for example;

3. It is also clear that receivers evolve counter-measures to exploitation (e.g., dishonesty by senders) within a species, for example:

3. Mart Gross found three types of male bluegill sunfish ((territorial, female mimic and sneaky). He claims that these are three pure, co-existing evolutionarily stable strategies and not a single conditional strategy. What must he be able to show about these alternative mating behaviors if he is correct?

4. Not quite right.

A. Sperm are cheap, relative to eggs, so males will always out reproduce females. "

B. "Demonstrating female choice among males is a matter of showing that females mate non-randomly with males having different variants of phenotypic traits."

5. Let's explore your understanding of some basic concepts:

A. How can the operational sex ratio cause sexual selection?

B. Explain how "role reversal" could be used to test Trivers' theory of sexual selection.

C. Trivers' theory predicts that if male P.I. is higher than that of females then females should compete and males be choosy. However, Vincent, et. al. in their paper on sex role reversal concluded: "... sex role reversal is not synonymous with male parental care." Explain what they meant.

6. Work on the following discussion questions in Alcock with one or more students in the class. We will not "answer" any of these in the review sessions, but a version of one or more of them might show up on the test:

Ch. 8 – 4

Ch 9. – 1, 3

Ch. 10 – 2,3, 5

Ch. 11 – 3, 4, 6