

Masters Exam Questions Evolutionary Ecology January 2016

1. According to Bateman's principle, the number of copulations makes a difference to a male's reproductive success but not to a female's reproductive success. Why? What are the implications of Bateman's principle for morphological and behavioral differences between men and women?
2. In Trivers' influential (1972) paper, parental investment and sexual selection, he relied on Bateman's principle to argue that parental investment is the foundation for sexual selection. Explain subsequent criticism of this causal argument.
3. Explain the theory of parent/offspring conflict and illustrate its use in explaining morphological and behavioral adaptations.
4. Discuss the tradeoff between quality of offspring and quantity of offspring. Summarize theoretical and empirical work on variables that affect the optima.
5. Isaac and others promoted the idea that early archaeological sites were "home bases" demonstrating that food sharing within the nuclear family was a critical development in the evolution of humans. Evaluate the support for this position with data from modern hunter-gatherers.
6. Behavioral ecologists make explicit use of the theory of natural selection and of optimization, but neither of these is under test in any particular empirical study. What is under test? What does this have to do with natural selection and optimization? Provide a good example of the appropriate use of optimality models for studying human behavior.
7. Currently three different approaches apply evolutionary tools to the study of human behavior (1) cultural evolution (cultural transmission), (2) human behavioral ecology, and (3) evolutionary psychology. Characterize each, using examples, and summarize their similarities and differences
8. Increasingly, models from evolutionary ecology are being applied to address questions involving human behavior in archaeological settings. Discuss the key successes of this approach as well as the difficulties involved in applying evolutionary ecology in archaeological contexts.
9. What are Charnov's "life-history invariants"? How have they been applied to humans and other primates?
10. Discuss the currency, decision, and constraint assumptions incorporated into the patch model and marginal value theorem. What are the differences between the two models? When are they appropriate for studying variation in human foraging?

11. Males and females may have different foraging goals. List evolutionary reasons why this might be so and discuss how these reasons might apply to the human sexual division of labor. Provide ethnographic illustrations.
12. Natural selection no longer operates on modern day humans. Discuss.
13. In human heterosexual mating strategies, males and females desire different traits in the opposite sex in different stages of their lives. Discuss why this happens using an evolutionary perspective.
14. Are the behavioral effects of testosterone adaptive in humans? Discuss using examples from lectures and readings.
15. Discuss how biological and cultural responses to environmental stressors have influenced the modern human phenotype.
16. While the grandmother hypothesis takes advantage of some arguments in Williams (1957) foundational paper on the evolution of senescence, the hypothesis relies on subsequent findings to counter Williams' supposition that human menopause is "stopping early." Explain the hypothesis and the issues.
17. While the fossil and archaeological records will always be major lines of evidence about human evolution, living animals – especially our primate cousins - can provide crucial evidence as well. Use examples to illustrate and defend that claim.
18. In their broad review *Primate Cognition*, Tomasello and Call (1993:340) concluded that "there is no solid evidence that nonhuman primates understand the intentionality or mental states of others." Explain the basis for that conclusion then, and for subsequent revision of the position that only humans have the cognitive capacity for "theory of mind."
19. What are some of the typical characteristics of monogamous species and why might monogamy be a good strategy for some?
20. Infanticide by males entering a new social group has been reported in many primate species. Discuss male and female counterstrategies using examples from the literature.