Studyguide 1, Evolutionary Psychology Spring 2020

This studyguide for the first quiz covers Buss chapter 1, lectures through Jan 16, and the Cashdan reserve reading (first 3 pages only). Epigenetics and Ridley will be covered in the second quiz, after we discuss them.

On quizzes, you will not be expected to remember details, but should remember the main point of an example, and what general principle it illustrates.

- Understand how natural selection works. What are the three essential ingredients? (Buss and lecture)
- Be able to describe the changes that took place in the Grant's study of the medium ground finch, and how this example illustrates natural selection (lecture).
- What is sexual selection (Buss and lecture)? Be able to give examples of both kinds: intra-sexual selection and inter-sexual selection/mate choice.
- Is natural selection the only cause of evolutionary change? (Buss p. 9).
- The modern synthesis integrates Darwin's theory of natural selection with an understanding of the genetics of inheritance. Mendel showed that inheritance is particulate. Why is this important for natural selection? (lecture and Buss)
- Tinbergen suggested that there were four types of "why" question. What are they? (Buss p. 12). All are important, but which of these is evolutionary psychology primarily interested in?
- Understand the concepts of kin selection and inclusive fitness. How does this provide an explanation for altruism? (Buss and lecture).
- Why are altruistic traits unlikely to evolve through group selection? (this may not apply to cultural evolution). p. 15 and lecture
- Understand the "common misunderstandings about evolutionary theory" (Buss pp. 16–17) well enough that if someone makes such a claim, you would be able to refute it. His misunderstanding #1 is basically the topic addressed in lecture Thursday, 1-16.
- Natural selection does not produce perfect adaptation, and a lot of things appear to be maladaptive. Review the reasons (pp. 18–19 in Buss, and lecture 1-14 on adaptation and maladaptation). Review the examples given in lecture and the text for the following.
  - it may be unpleasant, but still adaptive
  - manipulation (it may be adaptive, but not for you)
  - trade-offs and costs
  - historical constraints (must start wtih existing variation)
  - frequency-dependent selection
  - traits adapted for another time/place

- To a biologist, an altruistic trait is one that favors another individual at the expense of the altruist. We reviewed several ways seemingly altrustic traits could evolve. What are they? (lecture).

- Reciprocity is one proposed explanation for generosity to non-kin, but the problem is ensuring that a favor will be reciprocated. Some people think that social cognition and social emotions evolved to help us ensure reciprocity and know who to choose as a partner.

- Know what a "norm of reaction" is, and what it implies for the nature-nurture debate. (lecture). Give an example discussed in class. Now think of something not discussed that is likely to be an example of a norm of reaction, and draw it.

- Be able to summarize how natural selection shaped the ability to respond to changing environmental conditions in soapberry bugs. Note that the responsiveness (the norm of reaction curve) is itself heritable, and appears to be adaptive. What affects the shape of the curve? (lecture)

- What were B.F. Skinner's views on human nature? what were Margaret Mead's views? (Buss 25-26). Both were widely shared at the time, and although their work was very different, there is a similarity in their view of human nature. Explain the similarity and how the perspective of evolutionary psychology differs

- Garcia studied conditioning in rats by pairing a stimulus (lights or tasty water) with a punishment (electric shock or x-ray induced nausea). What were the rats able to learn? (lecture). He also did studies showing that rats could learn to associate nausea with a type of food even after several hours between the food and the nausea (lecture & Buss). Why general inference can you draw from these results (i.e., why did I bother to talk about this?). How does it refute the assumptions of early behaviorism?

- What might studies of attention in newborns tell us about the interaction between "nature" and "nurture"? What do they attend to? Why might this be an evolved adaptation? (lecture).

- Animals can be dangerous, but people need to learn what animals are dangerous in their particular environment. Is this purely cultural, or is there evidence that we are prepared to learn this more easily than other things? (lecture).

- The history described by Buss shows shifts between the view that much of human behavior is innate ("nature") to the opposite view that almost anything could be learned ("nurture") and culture was infinitely variable. Most scientists today acknowledge that nature and nurture interact, and that evolution has shaped how we learn and respond to environmental conditions.