

ANTH 130  
Section 02—Relethford  
Study Guide for Exam # 1  
Fall 2009

- The following is a list of terms and concepts that might be on the exam. Nothing will be on the exam that is not on this list (although not everything on this list will necessarily be on the exam). Because the exams are based on material from *both* lectures and assigned readings, you should use this study guide to coordinate the material from your lecture and readings notes.
- *Although many of these topics are covered in both lecture and the readings, please note that a number of topics covered in the readings will not be covered in class. There are also some topics and examples covered in class that are not covered in the readings.*
- In some cases, lecture material will update information from the text. In case of any discrepancy between information in lecture and text, make sure you use the information from lecture.

**Science and evolution**

Lectures: 8/26, 8/28, 8/31

Readings: Chapter 1

- What is culture?
- The four subfields of anthropology
- What do biological anthropologists study?
- Fact, hypothesis, and theory
- Pre-Darwinian thought about the biological world
- Lamarck and acquired characteristics
- Cuvier and catastrophism
- Uniformitarianism
- Darwin and natural selection
- The peppered moth and natural selection
- Types of evidence for evolution

- *Scientific* problems with teaching “creation science” and “intelligent design” as science
- Problems with the claim of “irreducible complexity”
- *Legal* problems with teaching “creation science” and “intelligent design” as science
- The outcome of the Dover trial

### **Review of human genetics**

Lectures: 9/2, 9/4

Readings: Chapter 2

- The bases in DNA (the letters, not the full names)
- Base pairs: A pairs with T, C pairs with G
- Functions of DNA
- What are chromosomes and how many chromosome pairs do humans have?
- Mitosis and meiosis (what they do, not how they work)
- Alleles
- Mendel’s Law of Segregation
- Genotype and phenotype
- Dominant, recessive, and codominant alleles
- Heterozygotes and homozygotes
- Know how to figure out expected proportions of genotypes and phenotypes in offspring (see examples on pp. 47–49) as well as figuring out possible parents given information on offspring. Note that I will always provide information on which alleles are dominant, recessive, or codominant.
- Mendel’s Law of Independent Assortment
- Linkage
- Recombination

- Sex chromosomes and sex determination (XX, XY)
- Differences in patterns of inheritance for nuclear DNA, mitochondrial DNA, and Y chromosome DNA

### **Microevolution**

Lectures: 9/7, 9/9, 9/11

Readings: Chapter 3

- Allele frequency (also know how to compute an allele frequency—see pp. 73–74)
- Be able to use Hardy-Weinberg equilibrium to figure out expected genotype frequencies given allele frequencies  $p$  and  $q$  (see pp. 74–75)
- What causes a change in allele frequency? That is, what are the four evolutionary forces?
- Mutation
- Fitness
- What happens when there is selection *against* recessive homozygotes?
- What is balancing selection?
- Genetic drift
- The influence of population size on genetic drift
- Gene flow
- The effect of geographic distance on gene flow

### **The evolution and classification of species**

Lectures: 9/14, 9/16

Readings: Chapter 4

- The biological species concept
- Anagenesis

- Cladogenesis
- The two steps in the speciation process
- Adaptive radiation
- Gradualism
- Punctuated equilibrium
- Extinction
- How common is extinction?
- Mass extinction
- Misconceptions about evolution: “bigger is better”
- Misconceptions about evolution: “newer is better”
- Misconceptions about evolution: “natural selection always works”
- Homology and homoplasy
- Primitive and derived traits
- Unique and shared derived traits
- Cladistics
- Outgroup

### **Mammals and primates**

Lectures: 9/18, 9/21, 9/23

Readings: Chapter 5 (pp. 125–139), Chapter 6 (pp. 155–159, 166–172)

- Classification of humans (kingdom, phylum, etc.)
- Placental mammals
- Mammalian characteristics: breastfeeding

- Mammalian characteristics: parental care
- Mammalian characteristics: temperature regulation
- Mammalian characteristics: differentiated teeth
- Primate characteristics: grasping hands
- Primate characteristics: nails instead of claws
- Primate characteristics: generalized skeletal structure
- Primate characteristics: depth perception
- Which suborder of primates are primitive—prosimians or anthropoids?
- Differences between New World monkeys and Old World monkeys
- Differences between monkeys and apes
- What are hominoids? What are their major physical characteristics?