ANTH 130
Section 02—Relethford
Study Guide for Exam # 3
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.

The evolution of archaic humans

Lectures: 11/2, 11/4
Readings: Chapter 11 (pp. 321–339)
See also the chart at the end of the study guide for further review

- On what continents did *Homo heidelbergensis* live?

- *Homo heidelbergensis*: brain size relative to modern humans (you need not know the exact brain size)

- *Homo heidelbergensis*: cranial and facial anatomy compared with modern humans

- *Homo heidelbergensis*: evidence of language

- *Homo heidelbergensis*: evidence of hunting

- How were Levallois (prepared core) stone tools made, and who invented them?

- Where did Neandertals live?

- Neandertals:

    - Brain size relative to modern humans

  - Distinctive features of the skull, face, and nose

- Neandertal DNA—what does it tell us about their relationship to us?

- Neandertal culture: cave burial

The origin of modern humans

Lectures: 11/6, 11/9
Readings: Chapter 12
See also the chart at the end of the study guide for further review

- First appearance of anatomically modern humans: when and where?

- Modern human anatomy: cranial shape, brow ridges, chin

- Upper Paleolithic tools

  - blade tools

  - burins

  - bone tools

- Cave art: different types and major themes

- Expansion into Australia and the New World (when and from where?)

- Modern human origins: African replacement model and assimilation model

- What are gene trees? Where do we find most of our recent common ancestors?

- What part of the world today shows the most genetic diversity, and what does that tell us about modern human origins?

The study of human variation

Lectures: 11/11, 11/13
Readings: Chapter 13

- How are blood types measured?

- Measures of DNA:
    - RFLPs (Restriction Fragment Length Polymorphisms)
    - Microsatellite DNA
    - SNPs (Single Nucleotide Polymorphisms)
- What are anthropometrics?
- Problems with applying the biological race concept to humans
- How many human races are there?
- Variation between and within geographic regions ("races")—how much occurs between and within regions?
- Genetic distance
- Genetic distance maps—what they are and how to interpret them
- Relationship of global genetic variation and geography
- Isolation by distance

Recent microevolution of human populations

Lectures: 11/16, 11/18, 11/20
Readings: Chapters 14, 15

- The origin of Native Americans
- English admixture in western Ireland (this Irish case study will be discussed in class)
- The Vikings in Irish history (this Irish case study is in the book)
- Variation in amounts of European ancestry in African American populations
- Maternal and paternal components of European ancestry in African Americans populations
- Variation in *individual* ancestry *within* African American populations

- The ancestry of the Lemba (who are they related to and how do we know?)
- Global variation in skin color—can we assign skin color to a finite number of shades?
- Geographic distribution of human skin color
- Geographic distribution of ultraviolet radiation
- Advantages of dark skin near the equator
- Advantages of light skin far from the equator
- Hemoglobin genotypes (*AA*, *AS*, *SS*) and phenotypes
- Geographic relationship of sickle cell allele frequency and malaria
- Selection for the *S* allele in malarial environments and balancing selection
- Horticulture and the origin of epidemic malaria in Africa
- Natural selection and the CCR5D32 allele
- Lactose intolerance and dairy farming

Human adaptation

Lectures: 11/30
Readings: Chapter 16

- Developmental acclimatization
- Relationship of body size and climate
- Relationship of body shape and climate
- Relationship of cranial shape and climate
- Growth of chest dimensions at high altitude
- Age of migration and adaptation to high altitudes
- The major source of calories in hunting-gathering societies

- The effect of modernization on obesity and high blood pressure

The biological impact of agriculture and civilization

Lectures: 12/2, 12/4, 12/7
Readings: Chapter 17

- Life expectancy at birth in hunting-gathering populations
- Infectious disease in hunting-gathering populations
- Nutrition in hunting-gathering populations
- When did agriculture begin?
- Infectious disease in early agricultural populations
- Nutritional problems in early agricultural populations
- When did civilization begin?
- Influence of trade on the spread of the Black Death
- Differences in the effect of culture contact on New World and Old World populations
- The epidemiologic transition: characteristics
- The epidemiologic transition: causes
- Secular changes in height, weight, and age at menarche
- Emergent and reemergent infectious diseases
- Demographic transition theory: changes in birth and death rates
- Current population size of the world
- Changing age structure in the more developed countries of the world

Species in the Genus *Homo*

Note: The following table provides a summary (and updated information) of the species in the genus *Homo* discussed in class since the last exam. The information in the first two columns (Species, and Date) will be provided to you during the exam.

Species/Type	Date*	Location	Bipedalism	Brain size	Skull and teeth	Evidence of Culture
Homo heidelbergensis	800–200 ka	Africa, Asia, Europe	Modern bipedalism	Brain size almost the same as modern humans	Larger face and teeth and lower skull than modern humans	Continues using Acheulian tools; invents prepared core tools; definite hunters; use of fire
Neandertals	130–28 ka	Europe, Middle East	Modern bipedalism	Brain size the same as modern humans	Lower skull than modern humans; large nose and midfacial region; occipital bun	Mousterian tools (uses prepared core method); buries their dead; use of fire
Homo sapiens	200 ka to present	Worldwide; expansion into Australia and the New World	Modern bipedalism	Modern human brain size	High and well-rounded skull; flat face; chin	Invents blade tools, bone tools, art; buries their dead; use of fire

*ka = thousands of years ago