COURSE SYLLABUS: HUMAN EVOLUTION
ANTH 18630
KENT STATE UNIVERSITY: Spring, 2010

INSTRUCTOR:	Dr. Marilyn A. Norconk (mnorconk@kent.edu)
IMPORTANT NUMBERS:	office– 236 Lowry Hall; phone (330) 672-4123
OFFICE HOURS:	after class and by appointment
COURSE HOURS:	MW 2:15-3:30 pm
TEACHING ASSISTANT:	Kelly Droney (kdroney@kent.edu)
OFFICE HOURS:	T 2-4; F 3-4 pm; 218 Lowry Hall

ABOUT THE COURSE: The goal of this first course in biological anthropology is to provide you with the basics of evolutionary theory so that will better understand who we are, as a species, and where we came from. I will explore many concepts with you during the next 15 weeks. You may already be familiar with some of them – gene manipulation related to new medical procedures, human and chimpanzee genome projects, importance of preserving biological diversity, the creationism-evolution arguments, similarities in behavior between apes and humans, discovery of fossils that put the emergence of our family in the ancient past. I realize that application of concepts is probably more relevant to you than theory, but these are inter-dependent and it is important that you understand both. The course is divided into three parts: 1) history of evolutionary theory, basic concepts of genetics, and the genetical basis for human evolution; 2) introduction to our closest living relatives, monkeys, apes, and prosimians and theories about the evolution of human behavior, and 3) the fossil evidence for human evolution beginning with the stem group of non-human primates. The human story is a mere 6 million years old or so, but all of our physical systems, including our brains, have a much longer evolutionary history.

The first part of the course may be the most important and perhaos the most relevant to you, although you may find that you have more intrinsic interest in the living primates and/or fossils. I will begin the first week by discussing the history of a deceptively simple theory – the theory of natural selection. Although there are other mechanisms that contribute to evolution of organisms, natural selection is most interesting because it deals with how individuals interact with their environments to survive and reproduce. You will see that humans are very good at reproduction, and reproduction is the key to understanding how we got to where we are today, with 6 billion people worldwide and growing! So there will be many references to reproduction – if not human, than mammalian or primate – behavior, anatomy, physiology.

The topics of this course are also very accessible to us, both in the news media and pop culture and I encourage you to bring news items to our attention, or ideas that you may find interesting from the Discovery channel or PBS. I think this is a fascinating course because it is about us, about where we came from and how we got to where we are.

This is a "survey" course, which means that you will be introduced to new concepts at a fast rate throughout this five-week period. The heaviest part of the course for many people is the first third, so don't get behind and don't give up! I encourage you to talk to me during lecture, before or after lecture, by phone or email (mnorconk@kent.edu) If you are confused or if I have muddled an explanation, you can bet that you are not alone. Also remember that this is a BASIC SCIENCE LER course, equivalent in rigor to chemistry and biology LERs.

TEXT: Larsen, Clark Spencer 2010 Essentials of Physical Anthropology. New York: Norton Publishing (at KSU bookstore or DuBois). 1st edition. Required

TURNING TECHNOLOGIES RESPONSE CARDS: Response cards or clickers are required and are available from the book stores or on-line directly from Turning Technologies, Youngstown OH. Make sure you purchase the ResponseCard XR since there are multiple vendors and models. Only this make and model will work in this class. **I will begin to use the clicker on the second day of class. Please bring it to class every day.**

WEB SUPPORT FOR THE COURSE: If you are enrolled in the course, you will have access to the course website on Vista (vista8.kent.edu). To log on, you will need your flash ID and your current password to get into the site. Please check this site regularly for current information, test scores, handouts, reading assignments, exercises, reviews for exams and lecture outlines.

(Optional) LAB: The lab affiliated with this course is ANTH 18631 - Issues in Human Evolution. It is not required, but the lecture (ANTH 18630) is a pre- or co-requisite for the lab. Successful completion of the lab meets the state's science requirement for any student entering the university after August 2006. Given the demand for this lab and limited seating, we regret that we cannot accommodate every student in the lecture. All of the labs are currently filled for Spring, 2010.

EVALUATION SYSTEM: I will give **two exams during the semester and a final exam** during final's week. The **final exam is cumulative** – 30% of the questions will be taken from the first and second exams. Each exam is worth 100 points and will be a combination of multiple choice questions and short answer questions. I will post **review sheets** for the exams on the web site one week before each exam and Kelly will hold a review (usually held in the lecture hall) a few days before the exam. Please plan ahead and keep on top of readings and lectures–there are no make-ups, nor extra credit opportunities in this course.

In addition to the exams, I will frequently give several instantaneous **quizzes** during class using the Response Cards. Quizzes will be worth 3 points each. The clicker technology will provide you with immediate feedback, that is they are "graded" on the spot, thus **quiz make-ups are not possible.** However, I know that occasionally you have unavoidable absences and I will drop the 3 lowest scores (which include missed quizzes for any reason). In all, the quizzes will make up 15% of your total grade. **Quiz grades and exam grades** will be reported on the Vista website.

GRADING SCALE FOR EXAM AND COURSE GRADES: A ≥ 92%; A- 91 - 86%; B+ = 85 -82%; B = 81-77%; B- = 76-74%; C+ = 73-70%; C = 69-61%; C- 60-58%; D = 57-51%; F ≤ 50%.

A NOTE ON ATTENDANCE: There is no substitution for attending lecture (and there are those pop quizzes!). After Jan 25th, attendance will be taken instantaneously using the clickers. Please contact me if you need to miss more than two consecutive classes (mnorconk@kent.edu). You will fall behind quickly if you don't attend class. Contact me Kelly if you are having difficulty keeping up.

Please read and make sure you understand the following University policies:

STUDENT ACCESSIBILITY SERVICES: University Policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. **Please note, you must first verify your eligibility for these through Student Accessibility Services** (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

CHEATING and PLAGIARISM: I take issues related to cheating on quizzes, exams, and projects very seriously. That includes, taking text directly from a source without giving credit to the author (plagiarism) and cheating, as in copying answers from each other during quizzes or exams, or from notes brought into class. KSU's digest of rules: *"Cheat" means intentionally to misrepresent the source, nature, or other conditions of academic work so as to accrue undeserved credit, or to cooperate with someone else in such misrepresentation. Cheating and plagiarism constitute fraudulent misrepresentation for which no credit can be given and for which appropriate sanctions are warranted and will be applied.* **"Plagiarize"** means to take and present as one's own a material portion of the ideas or words of another or to present as one's own an idea or work derived from an existing source without full and proper credit to the source of the ideas, words, or works.

SCHEDULE OF LECTURES AND READINGS

Section 1: EVOLUTIONARY THEORY & GENETICS

Major questions to be dealt with in this section are a) how does evolution work?; b) how does change occur at the cellular level and how do these changes constrain or enable change at the level of the organism? c) why do some heritable diseases persist in human populations despite their fatal outcomes? c) what is the "environment" and what role does it have in causing changes in structures and behavior?

Week 1: Chapter 1; Jan 20

Introduction to the course. The concept of "adaptation"; pre-Darwinian and modern concepts of evolution and natural selection. An example of how evolution works featuring research on Galapagos finches by Rosemary and Peter Grant.

***Week 2: Chapter 2*; Jan 25 & 27**

Introduction to genetics – genes, cells, chromosomes, etc. History of genetics and the

Hopefully, the concepts of cell division, and DNA replication & protein synthesis are not entirely new to you. If it is, or if you need to brush-up on the information, your text, your friendly web browser, and films on the web site are all user friendly ways to gain more information. Or see Kelly or me before or after class or during our (lonely) office hours.

connection between natural selection and genes. The four forces of evolution (natural selection, mutation, migration, and genetic drift.

Week 3: Chapter 3; Feb 1 & 3

Mechanics of DNA replication & protein synthesis; cell division. How organisms develop.

Week 4: Chapter 4; Feb 8 & 10

Human reproductive biology; how inheritance works. Structure and evolutionary change at the level of populations; gene and genotype frequencies.

Week 5: Chapter 4 (continued); Feb 15 & 17

Population genetics, human polymorphisms, adaptation vs. enculturation.

Week 6: exam = **Monday Feb 22th Bring #2 pencil** to class: Exam will consist of multiple choice, calculations, & short answers of material and chapters covered to date.

Section 2: PRIMATE & HUMAN BEHAVIORAL ECOLOGY

Questions: a) What is a primate? b) what characteristics do primates (including humans) share? c) why study primate behavior and ecology? d) does behavior evolve? e) how do males and females differ in their behavior and physiology? f) fighting males and choosey females: does it all come down to sex? g) where do humans fit among primates?

Week 6: Chapter 6 Feb 24 Introduction to the living primates; how are they similar and different from other mammals; how are they classified among the other Download primate handout from *Vista*.

Week 7: Ch 6 (continued) March 1 & 3 Monkeys of the New World and Old World. Characteristics of mating systems in primates. Variation in the acquisition of social rank and effects of rank on reproductive fitness.

Week 8: Ch 6 (continued) – March 8 & 10 Characteristics of greater and lesser apes: social organization, life history strategies, sex-biased behaviors (hunting), language acquisition. Introduction to sexual selection.

Week 9: Ch 6 (continued) March 15 & 17 Introduction to primate ecology – feeding, predation. Tropical forest conservation.

Week 10: SECOND EXAM: Monday, March 22 Bring #2 pencil: multiple choice, matching & short answer questions.

Section 3: FOSSIL EVIDENCE FOR PRIMATE & HUMAN EVOLUTION:

Who are our closest living relatives? How do the primate fossils inform us about living primates and ourselves? What were our ancestors like? How much have we changed in the past 6 million years (origin of our family); the last 2 million years (origin of the genus Homo) and the last 500,000 years (origin of our species)? When did we first speak, lose much of our body hair, and develop recognizable human behaviors?

Week 10: Ch 7: Wed March 24 Introduction to macroevolution, the fossil record and the evolution of early primates.

SPRING BREAK 3/29- 4/4

Week 11: Ch 8*: *April 5 & 7 The early period: Cretaceous through the Eocene. Direct and inferential methods used in dating older and more recent fossils. Download geological time scale from *Vista.* The Oligocene and Miocene.

Week 12: Ch 9: April 12 & 14 The australopithecines – history of discovery, anatomy of bipedalism, behavior of early hominids.

Week 13: Ch 10: April 19 & 21 The middle period of human evolution: *Homo habilis and H. erectus.*

Week 14: Ch 11: April 26 & 28
The earliest members of our own species – archaic sapiens and the neandertals.

Week 15: Ch 5 & 12: May 3 & 5 Emergence of modern sapiens. Natural selection in modern human populations.

Final Exam: Thursday, May 13th 12:45-3pm in lecture hall