ANTH 362: HUMAN BIOLOGICAL VARIATION
Spring Quarter 2009
111 Lillis MW 10:00-11:20 am
(4 Credit Hours; Satisfies SC & IP requirements)

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Prerequisite: ANTH 270 or permission of the instructor

Course Description: Genetic and biological structure of human populations; population dynamics and causes of diversity; analysis of genetically differentiated human populations and their geographic distribution.

Course Content: This course will examine genetic and phenotypic variation in contemporary human populations. We use an evolutionary biocultural framework to understand how adaptation to various ecological stressors (e.g., temperature, solar radiation, altitude, and nutrition) promotes human biological diversity. In addition, we will discuss how recent cultural changes (e.g., agriculture, industrialization, and urbanization) shape human variation and health, with an emphasis on chronic diseases such as obesity, cardiovascular disease, and diabetes.

Format: Lecture, in-class discussion, and required weekly laboratory sections.

Required Readings: Assorted articles and book chapters

Evaluation Criteria: Your grade will reflect your performance on a midterm exam, final exam, as well as submission of questions on the assigned readings, laboratory exercises, and your lab section attendance.

Midterm Exam **(4/29)**	30%
Final Exam **(Due 6/10)**	35%
Reading Questions (3 questions due each week, except week 1)	10%
Lab Exercises (8 *very short* lab write-ups)	15%
Lab Section Attendance	10%

Exams and assignments must be taken/turned in at the scheduled time—**under no circumstances will make-up exams or assignment extensions be given without a documented excuse** (e.g., signed note from your doctor). If you will not be able to take an exam or turn in an assignment, you **must** notify me in advance (preferably by e-mail).

Exams will be based on lectures, readings, videos, and discussions. The midterm and final exam will include objective (multiple choice & matching), fill-in-the-blank, short answer (2-3 sentences), and short essay sections (4-5 sentences). Although the final exam will **not** be cumulative it will require integration of material from the entire course (**not** just the material introduced after the midterm).

Once per week, each student will upload three short discussion questions onto Blackboard. These questions should be drawn from the readings for the week (the questions can focus on one article or multiple articles). Please submit questions the night before either Monday or Wednesday's class. We may use these questions in class to help foster discussion.

Appropriate accommodations will be provided for students with documented disabilities. If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me soon.

Schedule & Readings:

Week	Date	Topics	Required Readings
1	3/30	**Course Overview & Requirements** **Setting the Stage**: Human Evolutionary Biology & Evolutionary Medicine; Are Humans Still Evolving?	For the week: 1) Ward 2009 2) Nesse & Williams 1998
	4/1	***Video—The Life of Mammals: Food for Thought*** (Dr. Snodgrass at the Human Biology Association meeting in Chicago) **No labs this week**—Felicia at the HBA meeting too!!	3) Baker 1997 *Optional Background Reading*: Stanford et al. 2009 (Ch4)
2	4/6	**Describing Human Variation**: Phenotypic Variation & the History of the Concept of Race	For Monday: 1) Mielke et al. 2006 (Ch 1)
	4/8	**Describing Human Variation**: Population Thinking & *Biological* Anthropology; Human Adaptation and Adaptability; The Fall of the Concept of Race **Lab 1: An Introduction to Craniometry, Anthropometry, & the Methods of Physical Anthropology**	For Wednesday: 1) Huss-Ashmore 2000 2) Mielke et al. 2006 (Ch10)
3	4/13	**Describing Human Variation**: Skeletal Variation; Applied Skeletal Variation and the Concept of Race	For Monday: 1) White 2005 2) Sauer 1992
	4/15	**Describing Human Variation**: The Origin of Modern Humans; The Global Dispersal of Modern Humans **Lab 2: Modern Human Skeletal Variation; Applied Human Variation (Forensic Anthropology)**	For Wednesday: 1) Stanford et al. 2009 (Ch14) *Optional Background Reading*: Stanford et al. 2009 (Chapters 10-13)
4	4/20	**Describing Human Variation**: Human Genetic Variation; Genetic Variation and the Origin of Modern Humans	For Monday: 1) Mielke et al. 2006 (Chapters 2 & 3)
	4/22	**Describing Human Variation**: Population Genetics; Evidence for Recent Selection; Genetics and Race **Lab 3: Human Population Genetics**	For Wednesday: 1) Madrigal & Barbujani 2007

5	4/27 4/29	**Describing Human Variation**: Current Perspectives on Race; Social Dimensions of the Race Concept; Genetic Genealogy; How Race Becomes Biology **Midterm Exam (In Class)** **Lab 4: Techniques for Studying Human Variation**	For Monday: 1) Gravlee 2009 2) Harmon 2006 ***(**both readings will be covered on the midterm exam**)***
6	5/4 5/6	**Climatic Adaptation**: Heat **Climatic Adaptation**: Cold **Lab 5: Body Size, Proportions, Body Composition, & Cold stress**	For Monday: 1) Kormondy & Brown Ch7 2) Ruff 1993 For Wednesday: 1) Snodgrass et al. 2007
7	5/11 5/13	**Climatic Adaptation**: Solar Radiation **Climatic Adaptation**: High Altitude **Lab 6: Muscular Strength; Digit Ratio; Oxygen Saturation; Skin Reflectometry**	For Monday: 1) Mielke et al. 2006 Ch11 For Wednesday: 1) Kormondy & Brown Ch8 2) Beall 2001
8	5/18 5/20	**The Life Cycle**: Evolution of Human Life Histories & Energetics & the Regulation of Human Reproduction **The Life Cycle**: Growth & Development; Human Senescence & Aging **Lab 7: Skeletal Growth & Development; Aging**	For Monday: 1) Leonard 2004 2) Ellison 2003 For Wednesday: 1) Wiley & Allen 2008 Ch5 2) Wiley & Allen 2008 Ch7
9	5/25 5/27	**No Class—Memorial Day** **Evolutionary Medicine**: Theoretical Approach & Infectious Disease **Lab 8: Health (Biomarkers and Skeletal Health)**	For Wednesday: 1) Nesse & Stearns 2008 2) Wiley & Allen 2008 Ch9
10	6/1 6/3	**Evolutionary Medicine**: Chronic Disease **Evolutionary Medicine**: Psychosocial Stress **Lab 9: Human Energetics (Diet & Physical Activity)**	For Monday: 1) Wiley & Allen 2008 Ch4 For Wednesday: 1) Flinn 2008 2) Sapolsky 2005
	6/10	**Final Exam: Wed., 6/10 from 10:15-12:15**	