ANTH 3343 HUMAN VARIATION AND ADAPTATION Spring 2015

T/Th 11:00 – 12:20 PM
ELA 229

Instructor: Dr. Carrie Veilleux *office hours*: T/Th 9:30-10:30
ccv15@txstate.edu *office*: ELA 233
If you are unable to attend office hours, feel free to make an appointment!

COURSE DESCRIPTION

The goal of this advanced undergraduate course is to use an evolutionary and anthropological framework to examine the biological variation present in human populations. We will explore how the forces of natural selection, drift, and culture have influenced genetic and phenotypic differences within and between human populations. We will also explore how culture can influence our understanding of human biology, and we will discuss how studies of human variation have impacted society in the past and present.

This course will be a combination of lecture and discussion formats. We will evaluate primary literature and identify the differing types of data and methods used to evaluate human variation. You will be required to critically read and evaluate assigned readings and arrive prepared to discuss these readings during class.

Objectives: After taking this course you should be able to:

1) Articulate why race is not a valid biological categorization of human diversity.
2) Understand basic theory and tools for studying human population genetics and adaptation.
3) Describe examples of how human populations have adapted to different environmental conditions.
4) Critically examine how society and culture have influenced our understanding of human variation.

TEXTBOOKS, READINGS, & ASSIGNMENTS

Textbook: Mielke JH, LW Konigsberg, JH Relethford (2011) Human Biological Variation. Oxford University Press, 2nd edition.

Other Readings: Additional readings and assignments will be available online in TRACs.

GRADING
Your grade for the semester will be based on the following six components:

Exam 1	30%
Exam 2	30%
Homework	10%
Discussion Assignments	10%
Position Papers	10%
Participation	10%

Final Grade Ranges: **A** = 100-89.5; **B** = 89.49-79.5; **C** = 79.49-69.5; **D** = 69.49-59.5; **F** = < 59.49

Exams (60%): There will be *TWO* exams, each worth 30% of your grade. Exams will be non-cumulative and will cover all lecture material and assigned readings. All exam questions will be objective format (e.g. true/false, multiple choice, matching, fill-in-the-blank, and short answer). Make-up exams will be given ONLY with *documented proof* of dire emergency or illness. You must contact me within *three days* of a missed exam to qualify for a make-up.

Homework (10%): There will be 1-2 homework assignments during the semester that will be posted on TRACs in the Assignments tab. For late homework assignments, one letter grade will be deducted for each day late.

Discussion Assignments (10%): There will be two designated Discussion class sessions during the semester (Feb 23, Apr 27). In preparation of these discussions, students are expected to submit a 1-2 page response to the assigned readings and two potential discussion questions by midnight the day before the Discussion (5% per discussion section), and bring copies of the discussion questions to class. Late assignments will not be accepted.

Position Statement (10%): During the first week of the semester, each student will write a 1-2 page (double-spaced) position statement describing their views about race, sex/gender, and biology and questions/topics you hope to discuss this semester. This position statement (5%) will be due on January 25. A second 2-page (double-spaced) position statement (5%) describing the student's views on race, sex/gender, biology and science will be due at the end of the semester (on Apr 27). Position statements should be submitted electronically via the Assignments tab on the course website (in TRACs).

Participation (10%): Participation is an important component of this class, and you are expected to come prepared having done the readings. On discussion days, you are expected to come with discussion questions prepared, ask questions and participate in discussions. Attendance will be taken randomly throughout the semester.

COURSE POLICIES

Students with disabilities: Students with special needs (as documented by the Office of Disability Services) are encouraged to meet with me at the beginning of the semester to discuss any needs.

Grading Policies: If you have any questions about your grade on any exam, I will be happy to recheck your whole exam. Simple errors of grading (e.g., incorrect addition) will be corrected immediately. *More complicated issues should be addressed in writing within 3 days after the return of the exams.* Please include the exam with your request. You have 3 days after the exams have been returned to you to notify me of any errors or disagreements. After that, grades are final.

If you are struggling in the course, please come for help *during* the semester when there is still time for me to help you. Take advantage of my office hours or make an appointment with me. Do not wait until the course is over and ask me to change your grade because you are trying to graduate, or you have had a tough time with your personal life this semester. By then, it is too late for me to help you. If your performance during the semester is adversely affected by personal problems (e.g., death of a family member, mental health issues, etc.), you are encouraged to contact your dean's office as soon as possible to discuss your options.

ACADEMIC HONESTY STATEMENT

Texas State University-San Marcos Honor Code

As members of a community dedicated to learning, inquiry, and creation, the students, faculty, and administration of our University live by the principles in this Honor Code. These principles require all members of this community to be conscientious, respectful, and honest. (see http://www.txstate.edu/effective/upps/upps-07-10-01-att1.html)

Learning and teaching take place best in an atmosphere of intellectual fair-minded openness. All members of the academic community are responsible for supporting freedom and openness through rigorous personal standards of honesty and fairness. Plagiarism and other forms of academic dishonesty undermine the very purpose of the university and diminish the value of an education.

Cheating Policy

"Cheating" means engaging in any of the following activities.

a) Copying from another student's exams, laboratory assignment, or homework, or from any electronic device or equipment.

b) Plagiarism, such as copying sentences or phrases from other sources without sufficient paraphrasing, citation, and/or quotation marks.

c) Using materials not authorized by your instructor during an exam.

d) Collaborating, without authorization, with another person during an examination or in preparing academic work. This might include hand gestures, signals, etc.

e) Knowingly, and without authorization, using, buying, selling, stealing, transporting, soliciting, copying or possessing, in whole or in part, the contents of an unadministered or administered exam.

"Plagiarism" means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit. This includes copying verbatim sentences or phrases from another's work even if citation is given.

"Collusion" means the unauthorized collaboration with another person in preparing any work offered for credit.

For more information on what is and what is not cheating, please visit:

http://www.txstate.edu/honorcodecouncil/Student-Resources/Myths-about-Cheating-and-Plagiarism.html

Without exception, any student found cheating on an assignment will receive a grade of zero for the assignment, be dropped one letter grade for the final course grade, and will be referred to the Honor Code Council. Note that any attempt to alter a graded, returned exam in order to improve the score will be considered cheating and will result in a grade of zero for the exam.

IMPORTANT DATES

Jan 19: First day of class

Feb 3: Last day to drop with refund (ends at midnight)

Feb 25: Exam 1

Mar 13-20: Spring Break

Mar 29: Last day to drop a class

Apr 14: Exam 2

Apr 21: Last day to withdraw (by 5 pm)

May 2: Last day of class

COURSE SCHEDULE

1	1-19 (T)	Introduction to course, syllabus
	1-21 (Th)	Science and the study of human variation *Readings:* Marks (1996)
2	1-25 (T)	History of human variation studies I **Position Stmt. 1 Due** *Readings:* HBV Ch 1
	1-28 (Th)	*Race The Power an Illusion* Episode 1 (Film) https://www.youtube.com/watch?v=FMxmdvRvdvo
3	2-2 (T)	History of human variation studies II *Readings:* Schiebinger (1993)
	2-4 (Th)	Folk heredity and eugenics *Readings*: Marks (1995)
4	2-9 (T)	DNA, mutation, and genetic variants *Reading:* HBV Ch 2 (23-43), Ch 9 (198-210)
	2-11 (Th)	From DNA to phenotype *Readings:* HBV Ch 2 (pp 43-49), Ramagopalan et al. (2007), Hurley (2013)
5	2-16 (T)	Problems with racial and gendered views of human diversity *Readings:* Barbujani (2005), Ainsworth (2015)
	2-18 (Th)	Race, sex, disease, and the social determinants of health *Readings*: Gravlee (2009), Chemaly (2015)
6	2-23 (T)	*Discussion*: Race, sex, gender, and forensics *Readings*: Sauer (1992), Goodman (1997), Sitek et al. (2012)
	2-25 (Th)	**Exam 1**
7	3-1 (T)	Population genetics I *Reading:* Relethford (2012): Ch 1
	3-3 (Th)	Population genetics II *Reading:* HBV Ch 3
8	3-8 (T)	Forces of evolution *Readings*: Tarlach (2013)
	3-10 (Th)	Forces of evolution II *Readings:* Relethford (2012) Ch 7

9	3-13 to 3-20	**Spring Break!**
10	3-22 (T)	Population history and migration *Reading:* Relethford (2012) Ch 9, HBV 13
	3-24 (Th)	Ancient DNA, Archaic hominins, and human variation *Readings:* Haber et al. (2016)
11	3-29 (T)	Investigating selection and adaptation *Readings*: Vitti et al. (2013)
	3-31 (Th)	Adaptations & Plasticity: climate, altitude, and body form *Readings*: HBV Ch 11
12	4-4 (T)	Adaptations: skin and hair pigmentation *Reading*: HBV Ch 12
	4-7 (Th)	Adaptations: Blood groups, immune systems, and disease *Reading:* HBV Ch 4 (91-116), Ch 6, Ch 7
13	4-12 (T)	Adaptations: Diet *Readings:* HBV Ch 8, Perry et al. (2007)
	4-14 (Th)	Sex and gender *Readings*: Joel (2011), de Vries & Forger (2015), O'Connor & Joffe (2014)
14	4-19 (T)	**Exam 2**
	4-20 (Th)	Behavioral genetics I *Readings*: HBV Ch 14
15	4-26 (T)	Behavioral genetics II *Readings*: TBD
	4-27 (Th)	Discussion: behavioral genetics and genetic essentialism **Position Stmt. 2 Due** *Readings*: TBD

References for Additional Readings:

1. Marks J. 1996. The anthropology of science part II: scientific norms and behaviors. *Evolutionary Anthropology* 5:75-80
2. Schiebinger L. 1993. Theories of gender and race. *Nature's Body: Gender in the Making of Modern Science.* Boston: Beacon Press. pp. 143-183.

3. Marks J. 1995. Chapter 5—The Eugenics Movement. *Human Biodiversity: Genes, Race, and History*. Aldine de Gruyter. pp. 77-97.
4.Ramagopalan SV, Knight M, Ebers GC, Knight JC. 2007. Origins of magic: review of genetic and epigenetic effects. *British Medical Journal* 335:1299-1301.
5. Hurley D. 2013 Grandma's lousy childhood or excellent adventure might change your personality, bequeathing anxiety or resilience by altering the expressions of genes in the brain. *Discovery Magazine* May 2013, pp. 48-55.
6. Barbujani G. 2005. Human race: classifying people vs understanding diversity. *Current Genomics* 6:215-226.
7. Ainsworth C. 2015. Sex re-defined. *Nature* 518: 288-291.
8. Gravlee CC. 2009. How race becomes biology: embodiment of social inequality. *American Journal of Physical Anthropology* 139:47-57.
9. Chemaly S. 2015. How sexism and implicit bias hurt girls and women's health. *Huffington Post* 7/15/2015.
10. Sauer NJ. 1992. Forensic anthropology and the concept of race: if races don't exist, why are forensic anthropologists so good at identifying them? *Social Science and Medicine* 34:107-111.
11. Goodman AH. 1997. Bred in the bone? *The Sciences* March/April: 20-25.
12. Sitek A, Fijalkowka M, Xadzinska E, Antonszewski B. 2012. Biometric characteristics of the pelvis in female-to-male transsexuals. *Arch Sex Behav* 41: 1303-1313.
13. Relethford JH. 2012. Chapter 1-Genetic, mathematical, and anthropological background. *Human Population Genetics*. Somerset, NJ: John Wiley & Sons. pp. 1-21.
14. Tarlach G. 2014. Mutation, not natural selection, drives evolution. *Discover Magazine*, March 2014.
15. Relethford JH. 2012. Chapter 7 –Natural selection in human populations. *Human Population Genetics*. Somerset, NJ: John Wiley & Sons. pp. 1-21.
15. Relethford JH. 2012. Chapter 9 –Human population structure and history. *Human Population Genetics*. Somerset, NJ: John Wiley & Sons. pp. 1-21.
16. Haber M, Mezzavilla M, Xue Y, Tyler-Smith C. 2016. Ancient DNA and the rewriting of human history: be sparing with Occam's razor. *Genome Biology* 17:1.
17. Vitti JJ, Grossman SR, Sabeti PC. 2013. Detecting natural selection in genomic data. *Annual Reviews of Genetics* 47: 97-120.
18. Perry GH et al. 2007. Diet and the evolution of human amylase gene copy number variation. *Nature Genetics*. 39: 1256-1260.
19. Joel D. 2011. Male or female? Brains are intersex. *Frontiers in Integrative Neuroscience*. 5: 1-5.
20. de Vries GJ, Forger NG. 2015. Sex differences in the brain: a whole body perspective. *Biology of Sex Differences* 6: 1-15.
21. O'Connor C, Joffe H. Gender on the brain: a case study of science communication in the new media environment. *PLOS One* 9(10): e110830.