ANTH 362: Human Biological Variation

FALL 2015

University of Oregon
(4 Credit Hours; Satisfies SC & IP requirements)

Note: Please print this document for your records.

Course Location: 111 Lillis Hall (LIL)
Course Time: 2:00-3:20pm, Monday and Wednesday

Instructor: Dr. Lawrence Ulibarri
Office: 355 Condon Hall
Office Hours/phone: Monday 3:30 to 5:00, Friday 12:00-2:00 and by appointment, 541-346-5113
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Office: TBA
Office Hours: TBA
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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.
This is a science group satisfying course that examines key issues related to human biological variation with a focus on human adaptation and adaptability. This course examines genetic and phenotypic variation in contemporary human populations. It uses 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, the course focuses on 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. This course uses a scientific approach, drawing on the methods, theories, and bodies of knowledge from various scientific disciplines, including anthropology, evolutionary biology, human physiology, nutritional science, medicine, and epidemiology.
LEARNING OBJECTIVES

After successful completion of this course, students will have an understanding of the following key issues:

- The history of the use of the term “race” in biological anthropology
- Why race is not a useful term for describing contemporary human biological variation
- How race is a sociocultural phenomenon that has biological consequences including for health
- How genetic and environmental factors shape human skeletal variation
- How knowledge of skeletal variation is used in applied fields such as bioarchaeology and forensic anthropology
- The difference between sex and gender, and an appreciation for how cultural factors contribute to gender diversity cross-culturally
- The pattern of global human genetic variation and how genomics provides us with the ability to document evolutionary change and detect recent selection in human populations
- How environmental stressors such as temperature, solar radiation, and hypoxia shape contemporary human biological variation
- The links between chronic psychosocial stress and disease, including the specific factors that influence how stress ‘gets under the skin’ to affect health
- How a political economy perspective helps explain the impact of social stratification on health
- The evolution of the human diet and how contemporary health problems are in part a consequence of the discrepancy between what we eat now and what our ancestors ate

COURSE FORMAT

The course is designed in a Lecture/Discussion and Lab Format. There will be two lecture meetings per week. Most often, lectures will consist of in-class discussion related to the material we are exploring.

This course has three main sections:

Section 1 concentrates on describing human biological variation. This section begins with an historical overview of approaches to classifying human biological diversity. This includes a discussion of the rise and fall of the concept of “race” in anthropology, as well as the complex topic of racial differences in health. This section of the course also describes how genetic and environmental factors shape human skeletal variation, and discusses how knowledge of skeletal variation is used in applied fields such as forensic anthropology.
Section 2 focuses on understanding the factors that shape biological variation in contemporary human populations. This section of the course uses an evolutionary approach and, in particular, relies on life history theory and biocultural theory to understand the forces that shape variation within and between contemporary human groups. This section of the course also describes how genetic tools allow us to document evolutionary change and detect recent selection in human populations. Further, this section of the course describes how specific environmental stressors, such as temperature, solar radiation, and hypoxia, shape contemporary human biological variation.

Section 3 focuses on selected topics in human biology research. This section of the course will examine the health effects of chronic psychosocial stress and human nutritional evolution.

In total, students should expect to spend 15 to 20 hours of work outside of class time for this course, including the time devoted to reading, studying, lab assignments, lab and response papers, and developing and designing your discussions.

WORKING IN STUDENT GROUPS

Each student will participate in a group, and as a group you will lead one discussion. Groups will typically consist of between 10 to 15 people (12 in a class of 60). This student group led discussion can include a number of individual presentations from each group member, or a combined presentation/discussion lead by a few individuals from the group. Working in groups is beneficial because this allows you to assign tasks and share the workload. After group sign-up, if you wish to change groups please let me know ASAP. Otherwise, switching groups will not be permitted unless extenuating or special circumstances warrant switching groups later on in the term. Because you are developing a discussion, presentation, and critical analysis as a group, you might consider using online resources to develop, create, and edit your group discussions, such as Google Docs (http://www.google.com/docs/about/) and Prezi (http://prezi.com/).

Example for Group Discussion Formats

Ex. 1 – A group leader gathers the thoughts, ideas, articles, and questions from the group and presents them on behalf of the group. However, a single individual in a group is not responsible for leading an entire discussion.

Ex. 2 – Each student in a group together talk/present for 30 to 45 minutes about subjects related to their discussion, then lead a discussion based off the material for ~30 to 45 additional minutes.
CANVAS

This course is supported by an online CANVAS site. Our Canvas learning support site will allow you to complete academic work in a timely manner on your computer. Online articles, relevant links, and other relevant information will be included on the course site.

When you register for the class, you will automatically be enrolled to the site. All problems concerning the use of Canvas should be handled at the ITC center in the Knight Library. Issues more specifically related to the accessibility of course material should be directed to me.

Make sure that you regularly check your e-mail account which will notify you of material and announcements placed on our Canvas site.

EXPECTATIONS AND GRADING

Regular attendance, participation, and maintaining course readings are required to pass this course. Grades are based on a midterm exam, final exam, in-class discussion participation, leading a group discussion, discussion response paper (1x), weekly lab exercises, lab section attendance. Under no circumstances will make-up assignments or extensions be given without a documented and cleared excuse (see Accommodations). You will not receive credit for a late assignment unless you notify me in advance.

Evaluation will be based on the following four components:

1) **Midterm & Final Exams:** The midterm and final exams will be based on lectures, readings, videos, and discussions, and will include objective (multiple choice & matching), fill-in-the-blank, short answer (2-3 sentences), and short essay sections (4-5 sentences). The final exam is cumulative.

2) Participation – this includes attendance, an evaluation of your in-class comments, questions, and discussion participation, your contribution to discussion, your participation in our weekly Lab Sections.

3) Group led discussion / presentation – each student group will lead discussion during one of the designated discussion days (out of 5 possibilities — weeks 3, 5, 7, 9, and 10). This will require you to go beyond the reading and lecture, and to work in groups. Grading will be based on the quality put into your presentations/discussions. Examples of things that you can do during a group led discussion are:
   a. Design a short presentation based on your groups thoughts, ideas, and new material that you read for the discussion.
   b. **Design several questions based on the material covered that we can discuss as a class.** You might even send out these questions to our class a few days before the discussion to allow people a chance to develop ideas.
   c. Put together a short interactive assignment related to the material being covered.
d. Watch a short video segment(s) related to the material being covered.

4) Discussion Response Paper – On your discussion day, you’ll be required to submit a short response paper (2 to 3 pages) that highlight your thoughts, ideas, questions that you developed, and additional material that you read. **This should be brought to me in hard copy.** This is NOT a rehash of your entire groups’ discussion, but a highlight of what you personally did to prepare for and contribute to the discussion. This also provides you an opportunity for additional discussion and critical analysis. Include a References Cited section, and be sure to cite your sources in-text appropriately.

5) Lab write-up assignments – During the quarter, each student will write eight short (1-2 page) lab write-ups based on the exercises and questions from lab activities. Lab exercise write-ups are due in lab the following week.

**GRADING**

The weight of each form of evaluation to the total course grade is as follows:

- Midterm exam: 25%
- Final exam: 25%
- Participation in class: 10%
- Leading an in-class discussion: 10%
- Response paper for in-class discussion: 10%
- Lab exercises (short write-ups of each lab): 10%
- Lab attendance: 10%

**TOTAL** 100%

Grades will be assigned as follows:

**A+** = 97% and above.
**A** = 93-96.9%.
**A-** = 90-92.9%

**B+** = 87-89.9%
**B** = 83-86.9%.
**B-** = 80-82.9%

**C+** = 77-79.9%
**C** = 73-76.9%.
**C-** = 70-72.9%

**D+** = 67-69.9%
**D** = 63-66.9%.
**D-** = 60-62.9%

**F** = 59.9% and below
The grading system used in this course is as follows:

**A** – Outstanding performance relative to that required to meet course requirements; demonstrates a mastery of course content at the highest level.

**B** – Performance that is significantly above that required to meet course requirements; demonstrates a mastery of course content at a high level.

**C** – Performance that meets the course requirements in every respect; demonstrates an adequate understanding of course content.

**D** – Performance that is at the minimal level necessary to pass the course but does not fully meet the course requirements; demonstrates a marginal understanding of course content.

**F** – Performance in the course, for whatever reason, is unacceptable and does not meet the course requirements; demonstrates an inadequate understanding of the course content.

There is **no extra credit** for this course.

**REQUIRED TEXTS**

Articles and book chapters posted to our Canvas site (no required purchased textbook). Regular Canvas readings will be posted, be sure to regularly check. A list of all Required Readings is provided below (see Course Reading Schedule below) following the Course Schedule.

**ACCOMMODATIONS**

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 or discuss with me **immediately**. You will need to provide me with a notification letter from Disability Services outlining your approved accommodations.

I will post my lecture slides online after each lecture. 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** (see Personal issues). 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).

**PERSONAL ISSUES**

If there is a serious issue related to your ability to participate in our course, you need to contact me **immediately**. Delay in asking for help right away will cause you to fall seriously behind in the course, and make-up work will not be accepted unless prior
accommodations have been made. Examples of serious issues include you are ill and can provide a doctor’s note explaining that it is not advisable for you to participate in our class, a family death, conference participation, and participation in or travel associated with other events related to campus organizations, clubs, or groups.

ACADEMIC HONESTY

The University of Oregon and I consider academic honesty to be essential for each student’s intellectual development. As an institution fundamentally concerned with the free exchange of ideas, our University depends on the academic integrity of each of its members. In the spirit of this free exchange, students and teachers of our University recognize the necessity, and accept the responsibility, for academic honesty. As a student who enrolls in this course, you agree to respect and acknowledge the research and ideas of others in your work and to abide by those rules in our discussions in both lecture and lab classes.

Plagiarism:
Plagiarism is defined as the use of intellectual material produced by another person without acknowledging its source. For example:
• Wholesale copying of passages from works of others into an discussion or presentation
• Using the views, opinions, or insights of another without acknowledgment
• Paraphrasing another person’s characteristic or original phraseology, metaphor, or other literary device without acknowledgment
For further information about the UO policy on plagiarism and matters of social conduct, please refer to your student handbook. Also, the UO provides excellent resources to help you avoid plagiarism. Check out http://library.uoregon.edu/guides/plagiarism/students/index.html.
Please, for your protection and development, cite you sources properly and do not plagiarize. You can find proper use and examples of the APA citation method at the University of Oregon library website: http://library.uoregon.edu/guides/citing/apa.html
NOTE: Class schedule is subject to change in the event of extenuating circumstances, or otherwise modified as appropriate.

### COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates (m/d)</th>
<th>Topics</th>
<th>Required Reading</th>
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| 1    | 09/28       | Course Overview & Requirements  
Setting the Stage: Human Evolutionary Biology; Are Humans Still Evolving? | For Monday:  
1) Stinson et al. 2012  
2) Gibbons 2010  
3) Tyson 2009  
For Wednesday:  
Mielke et al. 2011 Ch. 1 |
|      | 09/30       | Historical Perspectives on Human Variation: The Rise and Fall of the Race Concept | Lab resource: Antón & Snodgrass 2009 |
|      | XX/XX       | Lab 1: An Introduction to Craniometry, Anthropometry, & the Methods of Physical Anthropology, | |
| 2    | 10/05       | Human Skeletal Variation I: Age, Sex, Stature, Identification of the Individual | For Monday:  
White 2005  
For Wednesday:  
1) Sobo 2013 Ch. 11  
2) Zuk 2007 |
|      | 10/07       | Sex and Gender: Sex vs. Gender—Sex, gender, & health; The sicker sex; Gender, performance, and sports; Gender diversity | |
|      | XX/XX       | Lab 2 (Video): BBC Horizon—Are We Still Evolving?  
--Video questions do NOT get turned in-- | |
| 3    | 10/12       | Human Skeletal Variation II: Applied Skeletal Variation and the Concept of Race | For Monday’s Discussion:  
1) Kennedy 1995  
2) Ousley et al. 2009 |
|      | 10/14       | Discussion: Describing human variation & deconstructing race | For Wednesday’s Discussion:  
Review week 1 & 2 readings; Optional Reading: Levy 2009 |
|      | XX/XX       | Lab 3: Human Skeletal Variation (Age, Sex, and Stature); Applied Human Variation (Forensic Anthropology) | |
| 4    | 10/19       | Human Evolutionary Biology Today: Population Thinking & Biological Anthropology; Human Adaptation & Adaptability; Revisiting Race—Untangling Biology & Genetics | For Monday:  
1) Frisancho 2010  
2) Gravlee 2009  
3) Kuzawa & Thayer 2013  
+ Optional Reading: Pitts 2014 |
|      | 10/21       | Human Genetic Variation: Genetics in Human Population Biology; Classic Markers & DNA Markers of Human Variation | For Wednesday:  
1) Meier & Raff 2010  
2) Steiper 2010 |
<p>|      | XX/XX       | Lab 4: Human Skeletal Variation (Race/Ancestry); | |</p>
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<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Material</th>
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<tr>
<td>5</td>
<td>10/26</td>
<td>Discussion &amp; Review—Revisiting Race—Untangling Biology &amp; Genetics; Stress &amp; Health; Developmental Origins of Health and Disease (DOHaD)</td>
<td>For Monday's Discussion Review week 4 readings &amp; Hartigan 2013</td>
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<td>10/28</td>
<td>Midterm Exam</td>
<td>No new readings for Wednesday</td>
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<td>XX/XX</td>
<td>Lab 5: Video: NOVA—Cracking Your Genetic Code —Video questions do NOT get turned in--</td>
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<td>6</td>
<td>11/02</td>
<td>Human Genetic Variation: Genetics and the Concept of Race; Detecting Selection &amp; How Humans Have Adapted; What Makes Humans Unique?</td>
<td>For Monday: 1) Long 2013 2) Lee 2013</td>
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<td>XX/XX</td>
<td>Lab 6: Population Genetics</td>
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<td>7</td>
<td>11/09</td>
<td>Climatic Adaptation: Cold Stress; Conservation vs. Metabolic Strategies</td>
<td>For Monday: Snodgrass et al. 2007</td>
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<td>11/11</td>
<td>Discussion: Genetic variation &amp; Heat Adaptation</td>
<td>For Wednesday's Discussion Review week 6 &amp; 7 readings</td>
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<td>XX/XX</td>
<td>Lab 7: Body Size/Proportions; Cold Stress; Oxygen Saturation</td>
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<td>8</td>
<td>11/16</td>
<td>Climatic Adaptation: High Altitude; Hypoxia</td>
<td>For Monday: Brutsaert 2010</td>
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<td>11/18</td>
<td>Climatic Adaptation: Solar Radiation; Selection in High vs. Low Sunlight Environments</td>
<td>For Wednesday: Mielke et al. 2011 (Ch. 12)</td>
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<td>XX/XX</td>
<td>Lab 8: Symmetry, Strength, and Skin Reflectometry</td>
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<td>11/25</td>
<td>Psychosocial Stress: What is Stress?; Acute vs. Chronic Stress; Adverse Social Environments; Biomarkers; Allostatic Load</td>
<td>For Wednesday: 1) Ice &amp; James 2012 2) Murray et al. 2006 3) Sobo 2013 Ch. 9</td>
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<td>XX/XX</td>
<td>Lab 9: Biomarkers</td>
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|   | 11/30 | 12/02 | XX/XX | For Monday:  
1) Snodgrass 2012  
For Wednesday’s Discussion:  
Review week 9 & 10 readings |
|---|---|---|---|---|
--Due on date of the final-- |   |
| 11 finals week | 12/09 | Final Exam, same room (111 LIL)  
Time – 2:45-4:45pm |   |   |
COURSE READING SCHEDULE

WEEK 1

For Monday:

For Wednesday:

Lab resource:

WEEK 2

For Monday:

For Wednesday:

WEEK 3

For Monday:

For Wednesday’s Discussion:
Review week 1 & 2 readings
Optional Reading:

WEEK 4

For Monday:

Optional Reading:

For Wednesday:

WEEK 5

For Monday’s Discussion
Review week 4 readings

Optional Reading:

No new readings for Wednesday—Midterm Exam

WEEK 6

For Monday:
For Wednesday:


WEEK 7

For Monday:


For Wednesday's Discussion:

- Review week 6-7 readings

WEEK 8

For Monday:


For Wednesday:


WEEK 9

For Monday’s Discussion

Review week 8 readings AND read:


For Wednesday:

WEEK 10

For Monday:

For Wednesday’s Discussion:
Review week 9 & 10 readings