**SYLLABUS**
**ANTH 100 (online) - History and Theory of Biological Anthropology**
Anthropology Department, UC Santa Cruz
Summer 2019

**Lecture days/hours: Online**
**Lecture location:** Online


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| **Instructor:** | Jay S. Reti, Ph.D. | **TA:** Danielle Huerta |
| Contact: | jreti@ucsc.edu | Contact: dmhuerta@ucsc.edu |
| Office: | Online during office hours or by Zoom appt. | Office: Online during office hours/Zoom |
| Office Hours: | Via email/Canvas on Wed. 10:00-11:00am | Office Hours: TBA |


**COURSE DESCRIPTION:**

This course is designed to provide the historical and theoretical overview of biological anthropology through a lens of evolutionary theory and the history of evolutionary thought. Through lectures, weekly readings, small group discussions, and response assignments, students will learn about the emergence of evolutionary theory and the key scholars who have contributed to its development since the 17th Century. Course topics will include the development of evolutionary theory and the modern synthesis, the advent of evolutionary developmental biology, reactions against rising adaptationist conclusions, and modern applications to biological anthropological theory. These and other key topics will help students understand how biological anthropology has emerged as a major discipline within the social sciences.

**COURSE OBJECTIVES:**

In this course, students will be exposed to a wide array of academic literature concerning the history and theory of biological anthropology. A successful student will:

1) have working knowledge of the key historic texts and ideas that have contributed to our understanding of evolutionary principles today,
2) be able to articulate how changing evidence has influenced our understanding of evolutionary theory,
3) apply this knowledge of evolutionary theory to topics in biological anthropology, and
4) form a critical eye in analyzing textual sources related to evolutionary theory and biological anthropology.

Course assignments (papers and small group discussions) will allow students to actively engage with the material and demonstrate their broader understanding of how theoretical understanding of evolution has changed through time.

**REQUIRED TEXT:**

This course will be using an assortment of research articles. These articles are available on the course Canvas website. Students will also be required to read excerpts of Darwin's "On the Origin of Species" over the course of the class. Students may purchase a paper copy of the book or access the .pdf version of the book available on the UCSC Canvas course website.

**COURSE REQUIREMENTS**:

Your grade will be determined via four components:

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| Weekly discussions and responses: | 30% |
| Midterm Exam: | 20% |
| Final Exam: | 20% |
| Final Paper: | 20% |
| Quizzes: | 10% |

The exams will consist of a combination of short responses and open-ended longer response questions. Weekly discussions will be based on assigned small groups (3-5 students per group). Each group will be responsible for coming up with a collaborative response to a weekly question concerning the lecture and assigned articles (your "small group discussion response"). This collaborative response must be posted to the class-wide discussion post for that section by the due date outlined in the course schedule found below. Each student must then read these responses and respond to another group (your "large group response") by the due date listed in the schedule below. Instructors will monitor these discussions for accuracy and analysis, clarifying where needed and paying particular attention to the posts in the large group discussion.

**STUDENT PARTICIPATION:**

The expectation within the University of California system is that for each credit hour of a course, students spend 3 hours in preparation during the week. A summer course is a condensed version of a ten week quarter course into a five week session. For a 5-credit course, this means that students should be spending about 30 hours per week preparing for class! An approximate distribution of the work time for this course each week is as follows: roughly 6 hours viewing/engaging with lectures, roughly 15 hours reading and reviewing course material, and 4 hours conducting research or writing for class assignments.

**SCHOLARSHIP AND CLASS ETIQUETTE:**

All cases of suspected plagiarism and cheating will be reported to the academic deans. I will discuss the issue of plagiarism during lecture, but please visit www.plagiarism.org for more information.

**SCHEDULE:**

| Date | Topic and Readings |
|---|---|
| June 24 - 27 | Introduction to the course<br>Pre-Darwinian concepts of humans, science, evolution<br>Readings:<br>- Nott 1843 – Mullato as a hybrid<br>- Farber 1972 – Buffon and the concept of species<br>1. **Lecture viewing due by Tuesday, June 25**<br>2. **Small group discussion posts due by Wednesday, June 26**<br>3. **Large group discussion posts due by Thursday, June 27** |
| June 28-July 2 | Lamarck and What Darwin didn't know<br>Readings:<br>- Darwin 1859 – Preface and Chapter 1<br>- Mayr 1972 – Lamarck Revisited<br>1. **Lecture viewing due by Friday, June 28**<br>2. **Watch film: What Darwin Didn't Know by Saturday, June 29**<br>2. **Small group discussion posts due by Monday, July 1**<br>3. **Large group discussion posts due by Tuesday, July 2** |
| July 3 - 8 | Response to Darwinian evolution: Owen and Huxley<br>Readings:<br>- Owen 1860 – Review of On the Origin of Species<br>- Huxley 1887 – On the reception of "The Origin of Species"<br>1. **Lecture viewing due by Wednesday, July 3**<br>2. **Small group discussion posts due by Friday, July 5**<br>3. **Large group discussion posts due by Monday, July 8** |

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| July 9 - 11 | 1. Darwin's immediate impact, De Vries, Fisher, Haeckel<br>2. Mendel and the Modern Synthesis<br>Readings:<br>- Bowler 1977 – De Vries, Morgan, and Mutation Theory<br>- Stauffer 1957 – Haeckel, Darwin, and Ecology<br>- Mayr and Provine 1981<br>1. **Lecture viewing due by Tuesday, July 9**<br>2. **Small group discussion posts due by Wednesday, July 10**<br>3. **Large group discussion posts due by Thursday, July 11** |
| **July 12 - 13** | **MIDTERM DUE JULY 13 (VIA Canvas Upload by 11:59 PM)** |
| July 14 - 17 | Revolt against adaptationists<br>- Gould and Lewontin (1979) – The Spandrels of San Marcos<br>- Barash 1976 – Male response in bluebirds<br>1. **Lecture viewing due by Monday, July 15**<br>2. **Small group discussion posts due by Tuesday, July 16**<br>3. **Large group discussion posts due by Wednesday, July 17** |
| July 18 - 22 | Socio-Biology and Sexual Selection<br>- Dawkins 1976 – The selfish gene excerpt (intro)<br>- Andersson 1994 –Sexual selection<br>1. **Lecture viewing due by Thursday, July 18**<br>2. **Watch Documentary: "Lord of the Ants" by Thursday, July 18**<br>3. **Small group discussion posts due by Friday, July 19**<br>4. **Large group discussion posts due by Monday, July 22** |
| July 23 - 25 | 1. Ancient DNA and the modern contribution of genetics<br>2. Evolutionary Developmental Biology ("Evo-Devo")<br>- Sankararaman et al. 2014 – Neanderthal genomics<br>- Hall 2003 – Evo Devo<br>- Gunz et al. 2010 – Brain development in humans and neanderthals<br>1. **Lecture viewing due by Tuesday, July 23**<br>2. **Small group discussion posts due by Wednesday, July 24**<br>3. **Large group discussion posts due by Thursday, July 25** |
| **FINAL PAPER** | **DUE <u>FRIDAY, JULY 26</u>** |
| **FINAL EXAM** | **FINAL EXAM DUE <u>FRIDAY, JULY 26</u> (VIA Canvas Upload by 11:59 PM); Final prompts available from Wednesday, July 24** |

History and Theory of Biological Anthropology (ANTH 100 online)
UC Santa Cruz
Online – Course Paper Assignment

**Course Paper Assignment: General Instructions**

For this paper assignment, please conduct research of a major figure concerning evolutionary theory in biology or biological anthropology. During our second class we will watch a documentary that introduces you to many different figures in evolutionary theory, but a few of the prominent ones are below. Your research should **NOT BE A BIOGRAPHY**, but rather focus on the research of the individual you select and how their research contributed to evolutionary theory. This may be in a positive light or a negative light, but you need to explain what evolutionary theory was thought to be during their time of research and how their research contributed to the understanding of that theory during their lifetime (and since they died, if applicable).

**Research Subjects (many others exist as well!):**

1. Comte du Buffon
2. Carolus Linnaeus
3. Jean-Baptist Lamarck
4. Charles Darwin
5. Charles Lyell
6. Richard Owen
7. Ernst Haeckle
8. Thomas Henry Huxley
9. Gregor Mendel
10. Thomas Hunt Morgan
11. Hugo de Vries
12. Julian Huxley
13. Ronald Fisher
14. Ernst Mayr
15. George G. Simpson
16. Stephen J. Gould
17. Edward O. Wilson
18. Bernard Wood
19. Lee Berger

**Final Paper: DUE FRIDAY, JULY 26 (ONLINE: CANVAS UPLODAD)**

- File Format: .doc, .docx, or PDF
- 8-10 pages, double-spaced, 12-point font, Times New Roman, 1" margins
- Parenthetical in-text citations (APA style guide, see Purdue OWL website for info)
- APA formatted reference section
- Academic references (peer-reviewed journals, edited books) – should be well-researched and include many references (at least eight for most topics, but please discuss with your instructors as you work through the assignment) that round out your discussion and argument

History and Theory of Biological Anthropology (ANTH 100 online)
UC Santa Cruz
Online – Small Group Discussion Prompts

**Weekly <u>SMALL GROUP DISCUSSION</u> participation should take place by the due date noted for each module (noted in the course schedule and below). Please coordinate with your small group to find online discussion meeting times that work for everyone:**

| **Date and Readings:** | **Response Topic:** |
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| **June 24 - 27: DUE WEDNESDAY, JUNE 26**<br>- Nott 1843 – Mullato as a hybrid<br>- Farber 1972 – Buffon and the concept of species | Before reading Farber's article, think about your current understanding of how Darwin changed the scientific world.<br><br>**Groups 1 and 2:** Read Farber's article about the Comte du Buffon and explain Buffon's complex ideas regarding evolution. How does Buffon define the concept of "species"? How is his understanding of what represents a "species" different from how we define the concept of a species today?<br><br>**Groups 3 and 4:** Nott lived a century after the Compte du Buffon. Given Buffon's definition of "species", do you think that Buffon would agree with Nott's conclusions? Explain why or why not? |
| **June 28 – July 2**: **DUE MONDAY, JULY 1**<br>- Darwin 1859 – Preface and Chapter 1<br>- Mayr 1972 – Lamarck Revisited | **Group 1:** Define "Lamarckian Evolution." How does Lamarck's view of the evolutionary process differ from Darwin (this should be an explanation in some detail!)?<br><br>**Group 2:** What is the major topic that Darwin covers in the beginning of *On the Origin of Species*? Why does Darwin begin with such examples of evolution? In other words, how does beginning the book this way strengthen Darwin's arguments for natural selection?<br><br>**Groups 3 and 4:** What are some of the major misconceptions of Lamarck's research and conclusions? What aspects of Lamarck's conclusions might have influenced Darwin's own research? |
| **July 3 - 8**: **DUE FRIDAY, JULY 5**<br>- Owen 1860 – Review of On the Origin of Species<br>- Huxley 1887 – On the reception of "The Origin of Species" | **Groups 1 and 2:** Read Huxley's retrospective look at Darwin's publication of *On the Origin of Species* and compare it with Owen's initial review. How did perspectives change in the 27 years between these publications?<br><br>**Group 3:** Categorize Owen's criticisms of Darwin. In other words, what broad *types* of criticisms does Owen wage against Darwin? Do you think that these |

criticisms are warranted? Which of these critiques is the most damning for Darwin in 1859? Why?

| Date and Readings: | Response Topic: |
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| **(July 3 – 8 continued…)** | **Group 4:** Outline some specific examples from Huxley that counter the arguments made by Owen. Your responses should select several examples and be specific about them. |
| **JULY 9 - 11**: **DUE WEDNESDAY, JULY 10**<br>- Bowler 1977 – De Vries, Morgan, and Mutation Theory<br>- Stauffer 1957 – Haeckel, Darwin, and Ecology<br>- Mayr and Provine 1981 | **Group 1.** Describe the differences between how Hugo De Vries and Thomas Hunt Morgan view the role that mutation plays in the evolutionary process.<br><br>**Group 2.** Ernst Haeckel made many contributions to furthering evidence for Darwinian evolution. Explain how the introduction of "ecology" changed the way that biologists viewed natural selection.<br><br>**Group 3:** Thomas Hunt Morgan's perspective on mutation changed over the course of his life. How does Morgan's early opinion on Natural Selection differ from his later opinion concerning Natural Selection?<br><br>**Group 4:** Why might the "modern synthesis" help to demonstrate the strength of Darwinian natural selection and end the idea of mutationism, which we discussed last week? |
| **JULY 12 - 13**:<br>- No Readings or discussion on these days. | MIDTERM EXAM – DUE AS CANVAS UPLOAD BY JULY 13 AT 11:59 PM |
| **JULY 14 - 17**: **DUE TUESDAY, JULY 16**<br>- Gould and Lewontin (1979) – The Spandrels of San Marcos<br>- Barash 1976 - Bluebirds | **Group 1:** What does the term "Adaptationist" refe to? Would Gould and Lewontin describe themselves as "adaptationists?" Why or why not?<br><br>**Group 2:** Think about our definition of Natural Selection and ask yourself how Barash applies Natural Selection to his study. What criticisms can you make of this article in its inception, methods, and/or conclusions?<br><br>**Group 3:** Gould and Lewontin specifically criticize the article by Barash (1976) that we previously read. Why do they criticize him and label him an "adaptationist?"<br><br>**Group 4:** Gould and Lewontin discuss the idea of "pluralism" – that more than one mechanism is responsible for evolutionary change (not only Natural Selection). Discuss some of the other mechanisms that might influence the evolution of life. |

| Date and Readings: | Response Topic: |
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| **JULY 18 - 22**: **DUE FRIDAY, JULY 19**<br>- Dawkins 1976 – The selfish gene excerpt<br>- Andersson 1994 – Introduction to sexual selection | **Group 1:** What does the concept of the "selfish gene" refer to? How is this interpretation different from a standard interpretation of natural selection?<br><br>**Group 2:** Sexual selection can operate in many different ways. Discuss the nuances of how the *process* of sexual selection can influence the ways in which organisms adapt.<br><br>**Group 3:** Look at Table 1.1.1. in Andersson's chapter on Sexual Selection. Discuss how different behaviors might demonstrate differential adaptations to breeding events and mating behaviors.<br><br>**Group 4:** Is Sexual Selection a separate evolutionary process (not just Natural Selection)? Or can sexual selection be classified as a sub-category of Natural Selection? Discuss what you, as a group, think and why. |
| **JULY 23 - 25**: **DUE WEDNESDAY, JULY 24**<br>- Sankararaman et al. 2014 – Neanderthal genomics<br>- Hall 2003 – Evo Devo<br>- Gunz et al. 2010 – Brain development in humans and Neanderthals | **Group 1:** What is the main question that Sankararaman et al. (2014) are addressing? Discuss the methods that they use to identify these specific genetic markers.<br><br>**Group 2:** What are the overall conclusions of the Sankaraman et al. (2014) article? How does this application of genetics differ from the initial genetic applications of the modern synthesis?<br><br>**Group 3:** How does Gunz et al. demonstrate the application of Evo-Devo to human evolution? In other words, how does an Evo-Devo perspective allow us to ask novel questions of the fossil record?<br><br>**Group 4:** Consider both the article for this week and my lecture. Think back to our initial discussions of the Biological Species Concept and Buffon's definition of species. Does a modern understanding of genetics and genetic differences change our definition of species or does it make the Biological Species Concept more robust? |
| **FINAL PAPER:** | **DUE FRIDAY, JULY 26 by 11:59pm (Canvas Upload)** |
| **FINAL EXAM:** | **DUE FRIDAY, JULY 26 by 11:59pm (Canvas Upload)** |