ANTHROPOLOGY 201: HUMAN EVOLUTION

<u>Course Outline</u>

Convenor: Dr. Heather Battles	**Tutor**: Sarah Karstens
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Office hours: Wed. 4-5pm	Office hours: TBA

Points
15.0

Prerequisites
30 points of Anthropology or 60 points passed

Lectures
Wednesdays 3-4pm in 201N-352 (Social Sciences Building – Te Puna Mārama room 352)

Labs
Thursdays and Fridays in the Biological Anthropology Lab
(Social Sciences Building – Te Puna Mārama room 706)
See your individual timetable for your lab time. <u>Labs are 2 hours long.</u>

Description
This course explores issues fundamental to understanding humans' place in nature from a biocultural perspective. What do we share with non-human primates, particularly apes, and how are we different? What led to the evolution of bipedalism, large brains and language? How do we define species in the fossil record? How can we reconstruct ancient diets and ecologies? What is the basis for the modern human life history pattern of long childhoods and grandparenthoods? The course will examine how new discoveries and advancements in biology are reshaping understandings of our evolutionary history.

Combining approaches from paleontology and archaeology, genetics, primatology, and ecology, we will explore hypotheses, theory, methods, and evidence through lectures, films, readings, discussions, and hands-on work with fossil casts and other materials in the lab. In labs you will have the opportunity to interact with and learn from our collection of fossil casts and other materials, adding to and reinforcing information and concepts presented in lecture. We will focus on building skills in evaluating not only primary evidence (e.g. fossil morphology) and its scientific interpretations (as presented through scholarly writing), but also the presentation of this work in popular media.

This course is intended to build on the skills and knowledge gained in ANTHRO 102. Please consult with Dr. Battles if you have not taken 102.

Course goals
To develop, enhance, and improve your
- Understanding of human evolutionary history and processes
- Understanding of the theories, methods, and techniques used by biological anthropologists
- Skills involved with reading and understanding scholarly literature
- Critical thinking abilities
- Ability to incorporate new evidence with existing knowledge
- Ability to synthesize and present scientific information

Course questions and themes

This course focuses on five main questions/themes:

1) How do we define a species?
2) Why bipedalism?
3) Why the large brain?
4) The role of climate change
5) Biocultural evolution

Employability skills

- *Analytical skills:* thoroughly and systematically assessing both primary data and secondary sources, identifying issues, strengths and weaknesses, and future needs.
- *Research skills*: conducting independent research on a topic, finding and assessing appropriate sources.
- *Writing skills*: synthesising and presenting complex technical information in coherent and concise prose, with correct attribution, developing a logical argument.

Learning assessments

Assessment	*Percentage (%) of final grade*
Lab worksheets	20*
Reading quizzes	10*
Research paper proposal	15
Research paper	20
Final exam	35

*based on the best 10 scores out of 11.

Schedule

Week	Dates	Topic	Assessments Due
1	6 Mar	**Introduction to the course and evolutionary mechanisms**	
2	13 Mar	**Evolutionary mechanisms and classification methods** **Lab:** Evaluating popular science writing*; LAB 1: Skeletal Anatomy*	**13 Mar** – Quiz #1 due by 9am
3	20 Mar	**Primate classification, behaviour, and ecology** (Guest lecture from Dr. Nicholas Malone) **Lab:** The scientific process*; LAB 2: Human vs great ape anatomy*	**20 Mar** - Quiz #2 due by 9am
4	27 Mar	**Early hominins** **Lab:** Case study & critique; *LAB 3: Australopithecines and Paranthropines*	**27 Mar** – Quiz #3 due by 9am
5	3 April	Guest lecture: **"Modern Human Origins: Asian Perspectives"** (Prof. Christopher Bae, University of Hawai'i at Manoa) **Lab:** Writing the proposal and finding relevant research online; *LAB 4: How to read a scientific journal article*	**3 Apr** – Quiz #4 due by 9am

6	10 Apr	**The beginning of *Homo*** **Lab:** Mid-term Qualtrics survey; *LAB 5: Early Homo*	**10 Apr –** Quiz #5 due by 9am **12 Apr –** Proposal due by 4pm
		Mid-semester study period (15 – 27 April 2019)	
7	1 May	**Modern human origins** **Lab:** ; *LAB 6: H. heidelbergensis, Neanderthals, and modern humans*	**1 May** – Quiz #6 due by 9am
8	8 May	**Ancient DNA and phylogenetics: Neanderthals, Denisovans, and beyond** **Lab:** Video clips (Decoding Neanderthals) and brief discussion; *LAB 7: Phylogenetics*	**8 May** – Quiz #7 due by 9am
9	15 May	**Reconstructing prehistoric hominin diets** **Lab:** Research paper discussion and troubleshooting*; LAB 8: Skeletal anatomy and diet*	**15 May** – Quiz #8 due by 9am
10	22 May	**Reproduction, alloparenting, and life history evolution** **Lab:** *LAB 9: Discussion: The obstetrical dilemma*	**22 May** – Quiz #9 due by 9am **24 May –** Research paper due by 4pm
11	29 May	**Language and the brain** **Lab:** End-of-term Qualtrics survey; *LAB 10: The brain*	**29 May** – Quiz #10 due by 9am
12	5 June	**Infectious disease and modern human variation** **Lab:** Exam review*; LAB 11: Human biological diversity*	**5 June** – Quiz #11 due by 9am

Textbook

There is no required textbook for this course. Rather, there are assigned readings which you can access online for free or through the University Library (see the Talis list). The textbook from ANTHRO 102 is recommended as a reference and source for review:

Fuentes, A. (2012) *Biological Anthropology: Concepts and Connections.* 2nd edition. New York: McGraw-Hill. Available from the University Bookshop.

Assessment submission and guidelines

Labwork: Labs are very important part of this course, as they are your opportunity for direct interaction with fossil casts and other materials. They are also a time for discussion with your classmates and consultation with your instructors. Worksheets for labs will be posted on Canvas the week prior to the relevant lab. We will expect that you have read over the lab worksheet prior to the beginning of lab, and we plan the amount of time needed to complete each lab exercise accordingly. IMPORTANT: BE SURE YOU PRINT OUT YOUR LAB WORKSHEET, ANSWER ANY PRE-LAB QUESTIONS, AND BRING IT TO LAB. **Your worksheet with your pre-lab questions answered is your ticket into the lab; if you have not done this preparation, you may be asked to complete these questions before being beginning that week's lab, costing you lab time.** This is designed to help you – and your labmates – get the most out of the lab time. Worksheets will be handed in (to your tutor) at end of

each lab for marking; they will be returned to for study purposes. There are 11 labs in total; your best 10 lab scores will count towards your final grade.

In addition to the graded lab exercises and worksheets, approximately 15-30 mins of each 2-hour lab will include a tutorial-style activity or other instruction; in some weeks this time is set aside for student feedback (see schedule for specific details of activities by week). Due to space restrictions and health/safety, you must attend only the lab session for which you are registered, unless granted permission otherwise.

Reading/video quizzes: Quizzes on Canvas cover the assigned readings for the upcoming lectures. Weekly quizzes must be completed by 9am on Wednesdays – this allows me time to review the results before that day's lecture. There is a time limit of 10 minutes for each quiz, therefore you should do the readings and make notes before attempting the quiz. There are 11 quizzes in total; your best 10 quiz scores will count towards your final grade.

Research paper and proposal: These are directly related assignments (details of each below).

Research proposal: You will begin by choosing one of the following recently published discoveries/analyses:

1) Slon, V. et al. (2018) The genome of the offspring of a Neanderthal mother and a Denisovan father. *Nature* 561: 113–116 https://doi.org/10.1038/s41586-018-0455-x
2) Hershkovitz, I. et al. (2018) The earliest modern humans outside Africa. *Science* 359 (6374): 456-459 http://doi.org/10.1126/science.aap8369
3) Villmoare, B. et al. (2015) Early *Homo* at 2.8 Ma from Ledi-Geraru, Afar, Ethiopia. *Science* 347(6228):1352-5. http://doi.org/10.1126/science.aaa1343
4) Elliott, M.C. et al. (2018) Description and analysis of three *Homo naledi* incudes from the Dinaledi Chamber, Rising Star cave (South Africa). *Journal of Human Evolution* 122: 146-155. http://doi.org/10.1016/j.jhevol.2018.06.008
5) Dirks, P.H.G.M. et al. (2017) The age of *Homo naledi* and associated sediments in the Rising Star Cave, South Africa. *eLife* 6: e24231. http://doi.org/10.7554/eLife.24231

Once you choose one of these, you will identify a relevant debate or discussion that this new paper contributes to and focus your specific research question on this, with the aim of critically evaluating the new evidence presented in the chosen paper and their significance for informing our understanding of human evolutionary history. For example, how does the new published aDNA, dating, or morphological analysis of a fossil hominin inform an existing taxonomic debate?

Your proposal should state your proposed topic and research question and include a brief (250 words ± 25 words) outline of what you intend to cover and a completed summary (using the "How to Read a Journal Article" template form from lab) of ~750 words for one peer-reviewed article you intend to use in your paper. See the assignment document file Research_Proposal_Coversheet_and_Marking_Criteria_2019.docx on Canvas for further details and use this document file to begin your assignment.

Research paper: The research paper will consist of 1,500 ± 150 words (12 pt. Times New Roman font, double-spaced) on the narrow issue chosen by you. Use the file Research_Paper_Coversheet_and_Marking_Criteria_2019.docx in Canvas to begin this assignment. You will build on the work accomplished in the research proposal assignment, addressing a research question using evidence and arguments that you present and evaluate from peer-reviewed sources. You should carefully evaluate the new evidence, including its limitations and any potential biases, and situate it in the larger scientific literature on the topic. Your research paper should include effective

use of at least 6 peer-reviewed sources (not including the original article selected from the list above), at least 4 of which must have been published within the past 10 years (2010-2019). **PLEASE NOTE**: the research paper will NOT be accepted unless the research proposal is first accomplished to a passing level.

Both the research proposal and paper should be submitted in Microsoft Word format by **4pm** on the respective due dates via Canvas.

Final exam: To be scheduled during the final exams period. 2 hours, with true/false, multiple choice, fill-in, and short/long answer questions.

All coursework must be submitted by the due date and time. Late work will not be accepted and not marked, except in exceptional circumstances. If you require an extension on the proposal or paper due to illness, etc., please speak to Dr. Battles well in advance of the deadline, rather than at the last minute. Leeway in built in to the course schedule in taking the best 10 of 11 labs and quizzes for the final mark, so no accommodations for a single missed lab or quiz will be given. If you miss more than one lab due to circumstances such as illness, please speak to Dr. Battles.

Help with academic problems

Please see your tutor or convenor if you are having problems with any aspect of the course. We are happy to see you and help you get the most out of this course.

If you need help with developing your writing skills or your ability to take effective notes, sign up with Student Learning Services located in Room 320, Level 3 in the Information Commons building. More information about their workshops and other services can be found online at www.library.auckland.ac.nz/student-learning/.

You might also wish to go to the English Language Self Access Centre (ELSAC) in the Kate Edger Information Commons building. They state that ELSAC "supports University students with all aspects of their English, offering language learning materials, computer programmes, workshops, and on-on-one language support, all free of charge and 7 days per week."

Disabled students

Students are urged to discuss privately any impairment-related requirements face-to-face and/or in written form with the course convenor and/or tutor. Additional information for disabled students can be found at the University of Auckland Disability Services website: http://www.disability.auckland.ac.nz.

Plagiarism

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's own work, reflecting his or her learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the world-wide web. A student's assessed work may be reviewed against electronic source material using computerised detection mechanisms.

For information on the University of Auckland's position on Academic Honesty and Plagiarism, and for specific guidelines for the Conduct of Coursework and Conduct of Research, please see: www.auckland.ac.nz/uoa/about/teaching/plagiarism/plagiarism_home.cfm