



Laboratory Practice in Biological Anthropology Department of Anthropology and Archaeology Anthropology 350 ~ *Fall 2017*



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Lecture: Thursday 14:00-16:45, ES 743

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Office hours: Thurs. 12:00-1:30 *and* by appointment

Course Description

Where, when, and how did humans originate? Why do we fall in love? What can we learn from the skeletal remains of prehistoric peoples? Why do almost a third of university students have difficulty functioning due to depression? How should we raise our children? Are we unique among animals? Why do we have such big brains? Why do we share so much in common with other primates and what might this tell us about who we are today? This course is designed to help us to answer these questions by providing a concentrated, hands-on introduction to human biology, the human place in the animal kingdom, and the evidence for human evolution.

We will begin with a consideration of the **scientific method** and **evolutionary theory**. A thorough understanding of both is essential as they provide the foundation upon which biological anthropologists base their work. We will then cover **human genetics** at the molecular and population levels. Next we will learn to identify **human skeletal** remains, which will help us to understand the lives of prehistoric human populations and provide a basis for subsequent sections on the fossil evidence for human evolution. In order to help us understand our place in the natural world, we will next turn our attention to **biological classification** and **comparative**

studies. With the understanding that we share recent ancestors with other primates, we will then study non-human **primate ecology**. Primate ecology can help us to determine whether aspects of our behaviors and mental capacities reflect ancestral evolutionary heritage or are new features evolved or socially acquired by our lineage. Subsequently, we will cover **the evidence for human evolution** and the **major developments in the evolution of our species**. This consideration of the evolution of humans should help us to understand modern human biology, our relationship with the rest of the natural world, and possibly inform our future action as a species. In our last meeting, we will return to the consideration of contemporary human biological variation via **anthropometrics**, a suite of tools that biological anthropologists use to document patterns of health in groups.

Learning Objectives

Overall course learning goal:

Background: A group of politicians, physicians, attorneys and business professionals complain to the university curriculum committee that biological anthropology is a waste of time for any student to take, claiming that the topics covered are too weird, have no bearing on the issues currently facing humanity and the environment and provide the students with no marketable skills upon graduation.

Goal: You will be able to convince the university curriculum committee that the work done by biological anthropologists provides useful insights to enable us to better develop solutions to current challenges and requires skills that are, in fact, marketable for students who wish to pursue careers either outside of or within the discipline of biological anthropology.

Specific Learning Outcomes

Upon the conclusion of this course you should be able to . . .

- 1) list ways of knowing and use one of these, the scientific method, to critically evaluate conclusions made about the relationship between variables;
- 2) provide a clear explanation for cellular reproduction, protein synthesis, and the inheritance of traits;
- 3) provide a clear explanation and examples of the mechanisms that drive change in species over time (e.g. natural selection, sexual selection, genetic drift, gene flow, and mutation);
- 4) identify the types, features, sex, side, and several lesions of human skeletal remains;
- 5) explain in a culturally-sensitive manner why we should continue to study human skeletal remains;

- 6) explain to taxpayers why the Canadian government should continue to fund research on non-human primates (e.g. How, exactly, might this work be relevant to the people of Canada?);
- 7) delineate the evidence for human evolution (For example, if you meet somebody at a bar who argues that humans originated 6,000 years ago through divine intervention, you will be able to suggest a different explanation for human origins, based on fossil, genetic, archaeological, and paleoenvironmental evidence.);
- 8) explain to physicians how the study of human variation in contemporary peoples by biological anthropologists might enable us to generate more effective health interventions.

Course Conventions

1. Lab: In order to meet the goals of the course you have to come to on time to every lab. Be prepared by reading what is assigned for the day. You are responsible for lecture material and any announcements concerning changes in schedule, etc.

2. Electronic Devices: Except when required by lab activities, the use by students of computers, cell phones, or other personal electronic devices in the classroom is not permitted. *Why not?* This rule is based on research which finds that most students using a computer in the classroom attempt to multitask and students who are multitasking during class have less understanding and recall of what's being discussed. As well, students who are in direct view of a multitasking peer scored lower on a test compared with those who were not. Even when multitasking is blocked, researchers find that students who take notes on a computer generally perform worse than students who take notes by hand: laptop users are generally creating a transcript of the lecture, while those taking notes by hand were synthesizing the information. This is often apparent in my meetings with students who have used their computers to create an almost verbatim record of what I said in class, but are unable to grasp what I sought to convey.

3. Reading: You are not required to read a great deal in this class. However, keep in mind that *you are not finished with the reading assignment until you thoroughly understand it.* This will sometimes require you to read an assignment more than once. An effective way of ensuring comprehension is to read the assignment then go back through it and summarize its main points in your notebook. Both the learning journal and online quizzes will provide you with an opportunity to reflect upon the assigned readings.

4. Evaluation: The metrics used in this course are designed to assess different types of knowledge and to ensure that my TA and I can determine where students might benefit from additional assistance. The marking components are as follows:

Lab participation (30%): We meet only 12 times during the semester and your attendance and active participation is required at each meeting. My TA and I will weekly evaluate your participation in laboratory activities.

Learning journals (20%): You will keep a learning journal online that encourages you to reflect on what you learned from the assigned readings. Either my TA or I will review your journal weekly and, in class, we will discuss your answers in small groups then as a class each week.

For example:

A. After reading portions of the readings on Kennewick man and the court trials concerning the specimen, students will be asked to answer the following questions:

- 1) Why is Kennewick man such a contentious issue?
- 2) How might you resolve the debate and what is your rationale?
- 3) Does this case have any relevance in the “real world”?

B. After reading McArthur (<https://aeon.co/essays/will-human-sexuality-ever-be-free-from-stone-age-impulses>)

- 1) Why are the claims made by evolutionary psychologists concerning mating so provocative?
- 2) How persuaded are you by the argument that monogamy is unnatural?
- 3) How would you design a research project to best determine what constitutes “natural” mating strategies?
- 4) If the best evidence suggests that monogamy is not our natural practice, what should we do about that?

Online quizzes: (10%) Weekly, you will take short online quizzes consisting of questions about the content of reading assignments, as well as questions that ask you to reflect on their learning, such as describing the most interesting thing you learned from the reading. Either my TA or I will review your quizzes to help us to determine how well you understand the material.

Lab practicals: (20%) Your knowledge of some of the material covered in this course is best evaluated via lab practicals. A lab practical is just a lab test. Instead of a scan-tron-type format with 100 or so questions, you will have to identify actual items such as fossils, bones, structures of DNA, etc. that you’ve studied in lab. For example, you may be given a particular bone and asked to name it, the side of the body from which it came and other information it might provide. Some lab practicals may be completed in teams. For example, your team may be given a mix of bones and asked to identify the number and ages of the individuals from the particular burial. When the practical is completed in teams, all students on the team will receive the same grade on the practical. Note that on each practical you should expect some items that you haven't seen in lab, such as a new model, a different bone, or fossil.

Class discussions: (20%) This class provides a rare opportunity for undergraduates to discuss the material both in groups and as a class. These discussions are designed to enhance your critical thinking, active listening, and public speaking skills. Your TA and I will evaluate your participation in these discussions weekly. Note that in a number of cases there will be no single, correct answer for the questions we will consider. I encourage you to put

what may seem to be the crazy ideas hiding in your head on the table and not worry about it—it’s part of the learning process. If you, like most(!), are nervous about speaking in public, this small class is a great place to start to overcome this fear.

Your final grade will be calculated as follows:

Component	Percentage of Overall Course Grade
Lab participation*	30%
Learning journal	20%
Online quizzes	10%
Lab practicals	20%
Class discussions	20%

* Students who have two or more unexcused absences, will earn no points for overall lab participation.

Letter grade assignment: At the end of the course, the numerical marks will be summed and a final letter grade will be assigned based on the following basis:

Percentage range	Letter grade	Percentage range	Letter grade
95 or higher	A+	68-72	C+
90-94	A	64-67	C
85-89	A-	59-63	C-
81-84	B+	54-58	D+
77-80	B	50-53	D
73-76	B-	49 or lower	F

Per the University of Calgary Calendar (<http://www.ucalgary.ca/pubs/calendar/current/f-2.html>), an “A” is earned for “superior performance, showing comprehensive understanding of subject matter”. Superior performance is, by definition, **extremely** rare. More common is the grade of “B” which is earned for “clearly above average performance with knowledge of subject matter generally complete”. More common still is the grade of “C” which is earned for a “basic understanding of the subject matter”. If you require clarification on letter grade assignments, please see me within the first two weeks of the semester. Keep in mind that, you have paid for the opportunity to learn, not a grade. As such, my TA and I do our utmost to ensure that you have the best learning opportunity possible in this course.

You must provide advance notice to the instructor if you are unable to attend a lab. All requests for deferral of an examination due to/for health reasons must be accompanied by written documentation as outlined in the University Calendar and should be obtained while the student has the physical or emotional problem rather than after recovery. Deferred exams may be allowed in the following circumstances: illness, domestic affliction, or religious conviction. If you have missed an exam for a legitimate reason, you will be able to write a “make up” exam as close to the original exam as possible. The date and location will be at the convenience of the Department of Anthropology and Archaeology. Travel arrangements and misreading of the syllabus are **not** valid reasons for missing a lab or incomplete or late assignments. Deferred lab

practicals or assignments will not be granted if it is determined that just cause is not shown by the student.

Please note that requests to defer term work past the end of a term go through the Student Success Centre / Undergraduate Programs Office (<http://www.ucalgary.ca/ssc/>) and must be processed by the deadlines that are established in the University of Calgary Calendar. You can find the deferred term work form at http://www.ucalgary.ca/registrar/forms_students. You must submit these deferral forms to the Faculty of Arts Associate Dean (Students) through the Student Success Centre / Undergraduate Programs Office (<http://www.ucalgary.ca/ssc/>). To make an appointment with the Associate Dean, phone (403) 220-3580. Only the Associate Dean approves requests for deferrals which extend beyond the end of a term. Instructors are not involved in such decisions.

A passing grade is not required on any particular component for the student to pass the course as a whole; that is, a student may fail, for example, the “Class Discussions” or any other component and, assuming their overall average percentage earned for the course is above 49, they will pass the course.

6. Academic Accommodation Policy: The purpose of academic accommodation is to provide students with documented disabilities equal opportunity to master the essentials of a post-secondary education. Students with disabilities at the University of Calgary have met all admission requirements but may have done so with the use of accommodations. Similarly, they are expected to meet all academic and non-academic requirements. Adaptive technology and other academic accommodations do not relieve students of their responsibility to develop the essential skills and abilities expected of all students.

Students with a disability, who require academic accommodation, must register with the Student Accessibility Services (<http://www.ucalgary.ca/access/>, MacEwan Student Centre 452, telephone 220-8237). Academic accommodation letters need to be provided to me *and* your lab TA no later than fourteen (14) days after the first day of class. It is a student’s responsibility to register the Student Accessibility Services and to request academic accommodation, if required.

7. Retrieving Assignments: The Freedom of Information and Protection of Privacy (FOIP) legislation disallows the practice of having students retrieve assignments from a public place, e.g., outside an instructor’s office or the Department main office. Term assignments must be returned to students individually, during class, or during the instructor’s office hours; if a student is unable to pick up her/his assignment s/he may provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

8. Office Hours: I enjoy having visitors during my office hours and am happy to schedule additional times as necessary. These hours are yours and I encourage you to take advantage of them, whether you are having difficulty with some aspect of the course, or if you would like to discuss in greater detail something that was touched on in class.

9. E-mail: Students are encouraged to use the lectures, lab periods, and office hours to ask questions. For after-hours questions, the use of email is acceptable. Please write ‘ARKY 203’ in the ‘Subject’ portion of the email. The TAs and I receive numerous e-mails everyday. By clearly identifying the subject of your email, you will help us reply more efficiently to your emails. If the TAs or I think that your question and related answer is of general interest, we may decide to

post them on the course Desire to Learn class website (your name will not appear). While I will do my best to reply to your message as soon as possible I will generally not be able to do so on weekends or holidays. Overall, I attempt to reply to all messages within four days.

10. Writing across the Curriculum: Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The University supports the belief that throughout their University careers, students should be taught how to write well so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their University courses and, where appropriate, instructors can and may use writing and the grading thereof as a factor in the evaluation of student work. The Writing Support services provided by the (<http://www.ucalgary.ca/ssc/writing-support>) in the Student Success Centre can be utilized by all students who feel they require further assistance.

ACADEMIC INTEGRITY

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Calgary is a strong signal of each student's individual academic achievements. As a result, the University treats cases of cheating and plagiarism very seriously. Non-academic integrity also constitutes an important component of this program.

For detailed information on what constitutes academic and non-academic misconduct, please refer to the following link: <http://www.ucalgary.ca/pubs/calendar/current/k-2-1.html>

All suspected cases of academic and non-academic misconduct will be investigated following procedures outlined in the University Calendar. If you have questions or concerns about what constitutes appropriate academic behavior or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources.

Where there is a criminal act involved in plagiarism, cheating or other academic misconduct, e.g., theft (taking another student's paper from their possession, or from the possession of a faculty member without permission), breaking and entering (forcibly entering an office to gain access to papers, grades or records), forgery, personation and conspiracy (impersonating another student by agreement and writing their paper) and other such offences under the Criminal Code of Canada, the University may take legal advice on the appropriate response and, where appropriate, refer the matter to the police, in addition to or in substitution for any action taken under these regulations by the University

TEACHING EVALUATIONS / USRI (Universal Student Ratings of Instruction)

At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. **Your responses make a difference, please participate!** Website: <http://www.ucalgary.ca/usri/>

Emergency Evacuation Assembly Points: In the event of an emergency that requires evacuation, please refer to the following link to become familiar with the assembly points for the class: <http://www.ucalgary.ca/emergencyplan/assemblypoints>

Freedom of Information and Protection of Privacy Act: Freedom of Information and Protection of Privacy Act

The University of Calgary is committed to protecting the privacy of individuals who work and study at the University or who otherwise interact with the University in accordance with the standards set out in the Freedom of Information and Protection of Privacy Act. Please refer to the following link for detailed information: <http://www.ucalgary.ca/legalservices/foip>

The Department of Anthropology and Archaeology's FOIP (Freedom of Information and Privacy) policy requires all reports/examinations to be returned to students during class time or the instructor's office hours. Any term work not picked up will be placed in the Anthropology and Archaeology Office (ES620) for distribution. Any student not wishing to have their work placed in the office must make alternative arrangements with the course instructor early in the term.

Safewalk Information: Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day to any location on Campus including the LRT, parking lots, bus zones and University residences. Contact Campus Security at (403) 220-5333 or use a help phone, and Safewalkers or a Campus Security Officer will accompany you to your campus destination.

Faculty of Arts Program Advising and Student Information Resources: Have a question, but not sure where to start? Arts Students' Centre

The Faculty of Arts Students' Centre is the overall headquarters for undergraduate programs in the Faculty of Arts. The key objective of this office is to connect students with whatever academic assistance that they require.

In addition to housing the Associate Dean, Undergraduate Programs and Student Affairs and the Associate Dean for Teaching and Learning, the Arts Students' Centre is the specific home to:

- program advising
- the Faculty's Co-operative Education Program
- the Arts and Science Honours Academy
- the Faculty's Interdisciplinary Programs
- a Student Help Desk

Location: Social Sciences Room 102

Phone: 403.220.3580

Email: ascarts@ucalgary.ca

Website: arts.ucalgary.ca/undergraduate/

For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at (403) 210-ROCK [7625] or visit them at the MacKimmie Library Block.

Contacts for Students Union Representatives for the Faculty of Arts:

arts1@su.ucalgary.ca

arts2@su.ucalgary.ca

arts3@su.ucalgary.ca

arts4@su.ucalgary.ca

Ombudsman`s office: <http://www.ucalgary.ca/ombuds/>

Schedule¹

Date	Lab	Topic	Reading ²
Sept. 14	1	Introduction: anthropology, science, and human variation	
Sept. 21	2	Forces of Evolution: Natural Selection	
Sept. 28	3	Molecular Genetics	
Oct. 5	4	Lab Practical # 1 (covers Labs 1-3) Population genetics & Inheritance of traits	
Oct. 12	5	Forces of Evolution: Hardy-Weinberg, Genetic Drift (Founder Effect)	
Oct. 19	6	Human skeletal biology I	
Oct. 26	7	Lab Practical # 2 (covers Labs 4-6) Human skeletal biology II	
Nov. 2	8	Human skeletal biology III	
Nov. 9	9	Primatology- <i>Students go on their own any time prior to Nov. 9. On Nov. 9, students will turn in their work and discuss their findings.</i>	
Nov. 16	10	Lab Practical # 3 (covers Labs 8-10) Comparative Primate Morphology	
Nov. 23	11	Paleoanthropology: Oligocene to Pliocene	
Nov. 30	12	Paleoanthropology: Genus <i>Homo</i>	
Dec. 7	13	Lab Practical # 4 (covers Labs 10-12) Human biology- anthropometry	

¹ The schedule of topics may change, pending the arrival of laboratory equipment which is on order.

² Readings and labs will be posted at least two weeks prior to each lab.

How might this course increase my credibility in the job market?

Transferable skills: This course will require working in teams to solve problems, creativity, research, critical thinking, analyzing the relationship between variables, creating a persuasive argument, active listening, and presenting your conclusions to an audience. See also <http://www.americananthro.org/AdvanceYourCareer/Content.aspx?ItemNumber=1782>, & <http://www.americananthro.org/LearnAndTeach/ResourceDetail.aspx?ItemNumber=13046>

Jobs appropriate for people with anthropology degrees:

<http://www.americananthro.org/AdvanceYourCareer/Content.aspx?ItemNumber=1783>

<https://www.prospects.ac.uk/careers-advice/what-can-i-do-with-my-degree/anthropology>

<https://www.utm.utoronto.ca/careers/careers-by-major-anthropology>