



INTRODUCTION TO PHYSICAL ANTHROPOLOGY

Archaeology 203 ~ *Fa/1 2016*



Professor: Warren Wilson

Lecture: Tues/Thurs 12:30-1:45,
ST 135

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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 teenagers exhibit risky behaviour? 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 the great apes 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 introduction to human biology, the human place in the animal kingdom, and the evidence for human evolution.

We will begin with a discussion of the development of evolutionary biology. A thorough understanding of evolutionary biology is essential as it is the paradigm upon which physical anthropologists base their research. We will then cover human genetics at the molecular and population levels. Next we will discuss human skeletal biology, which will help us to understand the lives of prehistoric human populations and provide a foundation 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. Subsequently, we will cover patterns and rates of evolution, 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. We will finish by studying 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.

Learning Objectives

Upon completion of this course, the student should be able to:

1. describe each step of the scientific method and describe how it differs from non-scientific ways of knowing;
2. use evolutionary theory and population genetics to describe and provide an example of each of the mechanisms that drive the evolution of species;
3. describe the goals and methods of anthropology in general and biological anthropology in particular;
4. describe the steps of protein synthesis, how traits are passed from parents to offspring from the perspectives of molecular genetics, pedigree analyses and Punnett squares;
5. describe the goals and methods of human skeletal biologists (also known as osteologists);
6. identify the bones and major features of a human skeleton and determine the age at death and sex of a human skeleton;
7. explain why biological anthropologists study human skeletal remains;
8. describe the goals and methods of paleoanthropologists;
9. describe the evidence for the evolution of or species beginning with the origin of primates;
10. describe the goals and methods of primatologists;
11. list the key questions asked by primatologists and their answers;
12. *link the knowledge obtained in this course to their everyday life and events in the news.*

Course Conventions

1. **Lecture:** In order to meet the goals of the course you have to come regularly and ON TIME to class and your 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. Please note that lectures are *not* a summary of the material presented in the text and that, on the balance, exam questions will be drawn from material emphasized in lecture.

2. **Electronic Devices:** 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. Lab: The lab portion of this class is designed to give you hands-on experience with subjects covered in lecture. Your labs begin in the second week of classes. Participation in the labs is required. While we make every effort to ensure that the lab and lecture material overlap, in some cases the lecture material will precede the lab covering that subject by a week or so and in some cases the lab will cover material not yet covered in the lecture.

4. 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. The coloring book exercises provide a complimentary pathway to learn the material.

Required Texts

Keenleyside and Lazenby. 2015. *A Human Voyage: Exploring Biological Anthropology*. Nelson Education. USA. (Second Edition)

Wilson, Covert, and Dufour. 2016. *Lab Manual for Physical Anthropology*. (Available on the Desire to Learn website for the class.)

5. Evaluation: You will be evaluated based on your performance on three mid-term exams drawn from the lecture (multiple choice and short answer), and your work in the lab. As well, I will frequently give brief, 5-minute, quizzes in class. I give these quizzes solely to determine whether or not you understand the readings and subject matter covered on a specific day. These quizzes will not affect your grade.

Prior to each mid-term exam, I will hand out a list of key terms which have been covered in the lectures, reading assignments, and films and will be found on the exam. Do not define these key terms in isolation; rather, define and understand them in relation to the other key terms within the context of the course. Note that Mid-term exam #3 is cumulative.

You must provide advance notice to the instructor if you are unable to take an exam. 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 Archaeology Department. Travel arrangements and misreading of the syllabus are not valid reasons for requesting a deferred exam. Deferred exams will not be granted if it is determined that just cause is not shown by the student. This policy also applies to laboratory assignments.

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/sscD>) 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/sscD>). 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.

Your final grade will be calculated as follows:

Mid-Term Exam #1:	25%
Mid-Term Exam #2:	30%
Mid-Term Exam #3:	10%
Lab Mark (determined by your lab instructor)	35%

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, Mid-Term Exam #2 or any other component and, assuming their overall average percentage earned for the course is above 49, they will pass the course.

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. Somewhat more common is the grade of "B" which is earned for "clearly above average performance with knowledge of subject matter generally complete". Even more common 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, I do my utmost to ensure that you have the best learning opportunity possible in this course.

Academic Accommodations:

The academic accommodations policy can be found at <http://www.ucalgary.ca/access/accommodations/policy>. It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodations and have not registered with Student Accessibility Services, please contact them at 403-220-6019. Students that have not registered with the SAS are not eligible for formal academic accommodations. More information about the academic accommodations can be found at <http://www.ucalgary.ca/access>.

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-suwort>) in the Student Success Centre can be utilized by all students who feel they require further assistance.

Schedule¹

Class	Date	Topic	Reading ²
1	Sept. 13	Introduction: physical anthropology, scientific method	"How to make Stress Your Friend" ¹¹ "Scientists' Tools" ⁴
2	Sept. 15	Evolution: history of evolutionary thought	3-22, "Why we are, as we are" ⁴
3	Sept. 20	Evolution: history of evolutionary thought	25-48
4	Sept. 22	Evolution: natural selection- Gould video	Darwin-Wallace paper (1858) ⁴ & web video clip ⁵
5	Sept. 27	Genetics & inheritance: early ideas, peas & people	51-68
6	Sept. 29	Genetics & inheritance: molecular genetics	71-82
7	Oct. 4	Evolution & genetics: modern synthesis & evo devo	evo-devo ⁶
8	Oct. 6	Evolution & genetics: population genetics	82-92 & web video clip ⁷
9	Oct. 11	Human skeletal biology	337-345, 358-367, & Take 2 beers and call me in 1600 yrs ⁴
10	Oct. 13	Mid-Term Exam #1	
11	Oct. 18	Taxonomy & Paleoanthropology	95-102
12	Oct. 20	Paleoanthropology: guiding principles	141-145 & Foote & Millar - Principles of Paleontology ⁴

13	Oct.	25	Paleoanthropology: how do we know what we know?, primate origins (Eocene) Primate Classification	145-155
Class	Date		Topic	Reading ²
14	Oct.	27	Paleoanthropology: anthropoids, hominoid, and homInd origins (Oligocene through Pliocene)	155-192
14	Oct.	27	Paleoanthropology: anthropoids, homInoid, and homInd origins (Oligocene through Pliocene)	155-192
15	Nov.	1	Paleoanthropology: Pliocene hominins and the origin of the genus Homo	195-222
16	Nov.	3	Paleoanthropology: Pliocene homInIn wrap-up & H. erectus	225-247
17	Nov.	8	Paleoanthropology: VIDEO "Alien from Earth"	249-272
n/a	Nov.	10	<i>Remembrance Day - No Classes</i>	
18	Nov.	15	Paleoanthropology: Archaic Homo sapiens...early to late	275-294
19	Nov.	17	Paleoanthropology: past & present behavior	If I had a hammer ⁹ Stone age sex ¹⁰ Optional: A new view of the birth of <i>Homo sapiens</i> ⁴
20	Nov.	22	Mid-Term Exam #2	
21	Nov.	24	Primateology: video	102-117
22	Nov.	29	Primateology: behavior & communication, field primatology	119-139
23	Dec.	1	Primateology: 10 enduring questions	A Quest to Save the Orangutan ⁴
24	Dec.	6	Primateology: demonic males?, Course wrap up	Sapolsky: The Uniqueness of Humans ⁸
25	Dec.	8	Mid-Term Exam #3	

¹The schedule of topics may change, but the exam dates will not change.

² Page numbers are from the A Human Voyage (Keenleyside & Lazenby) textbook.

³ This book will enhance your understanding of the topics addressed both in the lecture and lab sections of this course. You may wish to read/color several sections *in addition to* those listed here.

⁴ On the Arky 203 Desire to Learn website .

⁵ <http://www.pbs.org/wgbh/evolution/educators/teachstuds/svideos.html> Select Video 1: Isn't Evolution Just a Theory?

⁶ http://ievolution.berkeley.edu/evolibrary/article/evodevo_01 (read slides 1-5, the 5th slide is titled "Understanding Complexity". When you finish you should be able to answer the five questions shown on the first slide.)

⁷ <http://www.pbs.org/wgbh/evolution/educators/teachstuds/svideos.html> Select Video 6: Why Does Evolution Matter Now?

⁸ http://www.ted.com/talks/lang/eng/robert_sapolsky_the_uniqueness_of_humans.html

⁹ Tattersall, I (2014) If I had a hammer. *Scientific American*. September, 311(3):54-59. This article can be accessed electronically via the University of Calgary's Library Journals link (<http://library.ucalgary.ca/journals>. search for *Scientific American*, select 2014, select September, scroll down to article #24).

¹⁰ McArthur, N (2014) Stone age sex: When it comes to sex will humans ever be liberated from the basic biological needs that drove our evolutionary past? *Aeon* <http://aeon.co/magazine/psychology/is-human-sexuality-terminated-by-evolution/>

¹¹ McGonigal, Kelly "How to Make Stress Your Friend"

https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend

Human research: Students will not be expected to conduct research on themselves or others in this course.

Supplemental fees: There are no mandatory supplemental fees for this course.

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>

Academic Misconduct

Academic dishonesty is an unacceptable activity at the University of Calgary and students are strongly advised to read the Student Misconduct section of the University Calendar. Quite often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are:

- 1) Presenting another student's work as your own
- 2) Presenting an author's work or ideas as you own without proper referencing
- 3) Using work completed for another course

This activity will not be tolerated and students conducting themselves in this manner will be dealt with according to the procedures outlined in the University Calendar.

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

Plagiarism

Plagiarism involves submitting or presenting work as if it were the student's own work when it is not. Any ideas or materials taken from another source written, electronic, or oral must be fully and formally acknowledged. Plagiarism includes but is not limited to:

- (a) The work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),
- (b) Parts of the work are taken from another source without reference to the original author,
- (c) The whole work (e.g., an essay) is copied from another source, and/or,
- (d) A student submits or presents work in one course which has also been submitted in another course (although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved.

While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted.

Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis or dissertation.

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>

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.

STUDENT ACCESSIBILITY SERVICES ACCOMMODATIONS:

Student Accommodations. Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at:

[http://www.ucalgary.ca/policies/files/policies/procedure-foraccommodations-for-students with-disabilites.pdf](http://www.ucalgary.ca/policies/files/policies/procedure-foraccommodations-for-students_with-disabilites.pdf).

It is the responsibility of the student to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with Student Accessibility Services, please contact their office at (403)220-8237.

Students who have not registered with Student Accessibility Services are not eligible for formal academic accommodation. Students are required to discuss their needs with the instructor during the term that the course is running.

Faculty of Arts Program Advising and Student Information Resources

- Have a question, but not sure where to start? The new Faculty of Arts Student Centre is your information resource for everything in Arts! Drop in at SS102, call us at 403-220-3580 or email us at artsads@ucalgary.ca. You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate> which has detailed information on common academic concerns.
- For program planning and advice, contact the Student Success Centre (403) 220-5881 or visit them in their new space on the 3rd Floor of the Taylor Family Digital Library.
- 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.

Contact Information for Student and Faculty Representation

Student Union Vice President - Academic

Alicia Lunz

Phone: (403) 220-3911

Email: suypaca@ucalgary.ca