INTRODUCTION TO PHYSICAL ANTHROPOLOGY

Instructor: Reiko Matsuda Goodwin PHD
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Tel.: 718-817-3390
Office: DE 406B
Office Hrs: Tue & Wed 12:00 pm -12:30 pm
Classrooms: DE101 and or DE406A (lectures and some labs)
Class Hrs: Lectures: Tue, Wed, Fri 9 am-12 pm
Labs: Variable (See schedule)

COURSE DESCRIPTION

This is an introductory course to physical (or biological) anthropology. The course examines different subfields of biological anthropology, a history of evolutionary theories, an introduction to human genetics, human adaptation to environmental stresses, primate biology, behavior, ecology, and conservation, and a survey of the human fossil record. In particular, we will examine the basis of the range of variability within and among the world’s present human populations, variations found in non-human primates as well as the biological and cultural changes that took place in our ancestors over the past 5-7 million years. Lab sessions will provide a practical introduction to human osteology, primate morphology, primate conservation, and comparisons of human fossil morphology. The discussion sessions and optional short student presentations will sharpen the students’ skill to engage in discourse on issues that are at the interface of biological anthropology and society. This core area course in the Life Sciences is open to juniors and seniors as a tutorial in physical anthropology.

COURSE OBJECTIVES

By the end of this term, students will have a wide exposure to the diverse topics that involve evolutionary theories, human genetics, human biology, primate diversity, and human fossil record. They also develop more interest in the discipline of physical anthropology. This course emphasizes developing critical thinking skills and clear and concise writing skills.

READINGS

Most readings come from the textbook, but there will be other readings that come from articles placed on Blackboard, on Reserve in Walsh library, or handouts given out in class.

Textbook

If you are looking for discount priced textbooks, visiting http://nyti.ms/z4QYsx may be helpful. The online version of this textbook is available to purchase at http://tinyurl.com/z4fltfy .

PLEASE NOTE: NOT EVERYTHING IN THE TEXTBOOK WILL BE COVERED IN CLASS.
In addition, you will read many articles and Websites as required readings. You will also watch some videos online. The articles are usually found at the course site on Blackboard or at the Reserve Desk in the Library. Sometimes these are available on some Websites. There are also some videos online that you should be viewing. Students must understand that in addition to the articles listed as required, there may be other articles I may decide at the last minute to include as required readings. This is because there are always new findings and interesting articles that become available during the course of the semester after the syllabus was given out to you. There are also Recommended Readings. You will not be penalized if you do not read these Recommended Readings, but reading them will be extremely helpful in reinforcing your understanding of interesting issues, examples, and theories presented in class.

**Recommended Secondary Textbooks (Do not need to purchase)**


**Books on Reserve**

The following books are on Reserve for you to use as supplementary textbooks that can help you understand a number of topics and issues raised in class.


**REQUIREMENTS AND EXPECTATIONS**

1. **Required and Recommended readings and viewing:** In order to fully participate in the class, you need to have read textbook chapters or articles (online, on Blackboard, or on Reserve in Walsh Library) under the list of “Required reading” and viewed “Required viewing” online materials. In this way, questions that may arise during your reading or viewing can be resolved through questions asked in class and also you can prepare for any ad hoc discussions that may arise in class. The “Recommended readings and viewings” list materials often discussed or referred to during my lectures. These are not required readings and viewings, but they are extremely helpful for you to better understand issues and topics covered in lectures and labs. Lectures cannot cover everything written in the textbook, but the textbook will serve as an in-depth or wide-range information source to salient issues discussed in the course.

**Abbrev. of journal names**

AJP = American Journal of Primatology

AJPA = American Journal of Physical anthropology

IJP = International Journal of Primatology

PNAS= Proceedings of the National Academy of Sciences

ARA = Annual Review of Anthropology
2. Attendance, Participation, and presenting an article summary: Attendance is determined by your signature on a sign-up sheet at the beginning of every class. Even if you are late, you are still responsible for the missed segment of the class. Lectures frequently include information not found in readings, so if you miss a class, be sure to arrange with a classmate to share the notes. **Excusable absences** are those absences that have official notes from doctors or other authorities. If you are stressed or depressed that may prevent you from attending classes, you need to seek out psychological help. If you are under weather, please see a doctor and obtain a note. **Proactive participation** will count toward your grade. Proactive Participation is defined by arriving to every class on time and actively participating in lectures, lab activities, Q & A’s and discussions. **Unexcused absences will significantly negatively affect your grade.** You are also asked to behave cordially and professionally towards every participant in the class. Because the topics of this course are often taken up by the media (e.g., New York Times, Science News, Scientific American, Science Daily), students are encouraged to bring in any news and magazine clippings that may be relevant to this course.

3. Labs
There will be some labs, which are usually conducted in Dealy 406A, the room right next to my office. You need to pay close attention to each lecture and lab time by examining the **Schedule of Lectures & Labs** before coming to each class. You should set up a google calendar for this course and have alarms set up.

The main purpose of the labs is to enhance your understanding of the study materials by actually examining, measuring, or observing specimens or study subjects. You are expected to read relevant chapters from the textbook related to each lab prior to the arrival of the lab. You are expected to complete all parts of the labs before you leave the lab room. Please show me your work, before you leave each lab. **You must keep copies of all the labs for you to study for the online lab quizzes, and the final lab practical.** Points will be deducted if questions left blank, incompletely answered, or answered in a sloppy, careless manner.

Please pay $5 to purchase a lab book from the department secretary. Put your full name on the front of the pocket folder. Keep copies of all the labs.

4. Lab Quiz & Lab assignment
After each lab (Lab 1-4), there will be an online lab quiz. You can take each quiz up to three times, but make sure you take each quiz in a timely fashion. For Lab 5, you must obtain a paid receipt from the AMNH and attach with the lab. Lab 6 is Q&A based upon a documentary you watch online. Labs 5 and 6 are due at 9 am June 27.

5. Lecture Exams
There will be one midterm and a final exam, which are usually given as online Blackboard exams. The exams consist of multiple choice, true/false questions, and short answers. There may be an essay question as well. The location of the exam room and the password to open the exams will be announced at least 24 hours in advance. Final lecture exam will follow the same format as the midterms and occur during the official final exam week. Details will be given in class.

6. Lab practical
Lab practical is a cumulative exam that will reflect all lab activities engaged during the semester. It may include questions that were not included in the quizzes. Therefore, it is very important that you review all the lab materials. The lab practical includes physical examinations of some articulated and disarticulated skeletons of human ancestral species, contemporary humans,
non-human primates as well as some artifacts. You will examine them and answer questions that relate to the actual specimens you have examined in labs. There will be identifications by binominal terms, identifications of skeletal parts and features in the form of multiple choices, identification of functions in the form of fill-in-the-blanks, true/false, multiple-choice, and short answer questions.

7. Make-Up exam policy: Except under extenuating circumstances, there will be no make-up exams. An incomplete will not be given in this course. If you already know you will be missing an exam due to an athletic event or attending an academic meeting, a make-up exam will be given at a prior date. No post-date exam will be given. All illness-related excuses for exams or late assignments should have a doctor’s note.

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**GRADING SCHEME**

**Grading:** Course grades will be calculated in the following way:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Quiz (5 pts. x 4)</td>
<td>20 pts</td>
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<tr>
<td>Lab 5 &amp; 6 (Due June 27)</td>
<td>10 pts</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>30 pts</td>
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<tr>
<td>Final Exam</td>
<td>30 pts</td>
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<tr>
<td>Participation (Attendance, Leadership, Teamwork, etc.)</td>
<td>10 pts</td>
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After the final examination, points from all of your work and exams will be summed and converted into a letter grade by standardizing the points in relation with the class performance.

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**OTHER IMPORTANT MATTERS**

**Specimens:** In this class, we will study many valuable animal and human skeletal parts and skeletons. Some are real and some are casts. Please make sure to handle them with care. Before each lab, everyone must wash hands. Absolutely no food or drinks will be allowed in the classroom when we examine the specimens or use computers. Bottled water is allowed if it is tightly closed and kept in your bag. If you must eat, please do so before the class or during the break outside the class.

**Videos and DVDs:** If you miss viewing some videos and clips shown in class, you will need to obtain the full information and watch them at home. However, there is no guarantee that all videos and clips played in class will be publicly or commercially available.

**Classroom decorum:** All students must behave cordially to all participants. If you need to leave early due to an inexorable reason, you must speak to me before the class. Your visit to the bathroom should be limited to the break time. The use of cell phones will not be permitted. You must turn off your electronic devices outside the classroom and place them out of your reach during the class and exams. Absolutely no text messaging or Web surfing will be tolerated. The use of laptops or tablets will be permitted only when the entire class is required to use them. For example, you will use your laptop to take Blackboard exams in class. The reason that the use of laptop is not permitted during lectures and labs is because a number of scientific studies have indicated that students who multitasked and took notes with a laptop or tablet did worse than those students who took notes by hand. Studies have also indicated that the students who sat behind those students who used laptops did not do well. If you have a medical reason that necessitates the use of a laptop, please have your doctor sign an official letter. You will be asked to sit at the last row of the classroom.
Blackboard: All students should visit the Blackboard resource site at [http://tinyurl.com/zromrnq](http://tinyurl.com/zromrnq) and must download “Top Ten Things You Should Know About Blackboard (PDF)” and read the entire document and resolve any questions you may have in regard to the usage of Blackboard with the IT center. You must especially read the part that describes taking tests on Blackboard. **One mock exam will be available for use in the “Exams and others” folder before midterm I.** Please pay attention to any announcements I make on Blackboard. Some of the readings for this course are electronically available on Blackboard only. Information on assignments, research links, optional readings, etc. will be also posted on Blackboard. Please note that no lecture slides will be posted there, therefore attending lectures and labs is crucial to succeed in this class.

Email: All students should use a Fordham University email account to communicate with me. Students are responsible for checking my email messages before each class. Any email message I receive from you between 9 and 5 on weekdays will be responded within 24 hrs. I normally check email between 9 am and 5 pm, so if you send any email during the non-normal business hours, you should send your email again if you would like me to respond to your email.

The Fordham University Undergraduate Policy on Academic Integrity: All students must adhere to the university’s academic integrity policy. Plagiarism is a form of cheating – very serious cheating that can lead to serious consequences in your life as a student and as a professional. **Any act of plagiarism (in labs and exams) will not be tolerated and will be severely penalized.** If plagiarism is detected in an assignment or exam, you will obtain F for the assignment or exam. You should never ask somebody else to write your essays and research papers. You should not copy and paste word-for-word or paraphrase sentences or paragraphs from a written source or web sites without properly citing the references. I will follow the standard practices of Fordham University’s moral code, if plagiarism is detected in your work.

**INFORMATIVE WEBSITES, BLOGS, AND SOCIAL NETWORK SITES**

All The World’s Primates [http://alltheworldsprimates.org/Home.aspx](http://alltheworldsprimates.org/Home.aspx) [This is a comprehensive site that has an impressive amount of various primate-related data on all species.]


How Humans Evolved [http://wwnorton.com/showcase/HowHumansEvolved/welcome.html](http://wwnorton.com/showcase/HowHumansEvolved/welcome.html) [This is a Website for a different textbook, but it has a lot of relevant information.]

John Hawks weblog [http://johnhawks.net/weblog](http://johnhawks.net/weblog)


Myanthrolab.com [Companion site for your textbook. It has chapter summaries and quizzes. Code is available for fully paid textbook.]

National Museum of Natural History Human Origins [http://humanorigins.si.edu/](http://humanorigins.si.edu/)

Primate Info Net [http://pin.primate.wisc.edu/](http://pin.primate.wisc.edu/)


This is Anthropology [http://www.thisisanthropology.org/](http://www.thisisanthropology.org/)


MAJOR PROFESSIONAL ASSOCIATION SITES

American Anthropological Association  http://www.aanet.org/
Paleoanthropology Society  http://www.paleoanthro.org/
American Society of Primatologists  https://www.asp.org/index.cfm
American Association of Physical Anthropologists  http://www.physanth.org/
Human Biology Association  http://www.humbio.org/joomla/
Int’l Primatological Society  http://www.internationalprimatologicalsociety.org/
Paleopathology Association  http://www.paleopathology.org/
**ANOTATED SCHEDULE OF LECTURES & LABS**

05/30 (Tue)  **Lecture 1: Introduction to Physical Anthropology**

Topics: The place of anthropology in social sciences & science; What physical anthropologists do, where they work, and how they work.


05/30 (Tue)  **Lecture 2: Evolutionary theories and Classification**

Topics: Historical development of evolutionary theories in the West; Scientific revolution (geocentric to heliocentric ideas); Catastrophism, Inheritance of acquired characteristics, Darwin and Wallace, Natural Selection

Required: Stanford et al. 2016. Chapt. 1 (pp. 16-30, 33-34), Chapt 4 (pp.105-118)

Recommended: Fleagle 2013. Chapt. 1 [On Reserve]

05/31 (Wed)  **Lecture 3: Sexual Selection**

Topics: Sexual selection; Systematics; Taxonomy, Phylogeny, Taxa, Categories, Binominal Nomenclature; Species’ Concepts


05/31 (Wed)  **Lecture 4: Cellular Genetics**

Topics: Students will examine the structure and functions of DNA, chromosomes, and other heritable genetic materials are transferred from parental cells to offspring cells and the laws that govern this process.

Required: Stanford et al. 2016. Chapt. 2
Lecture 5: Mendelian Genetics

Topics: Mendelian genetics, Punnett Square, Monohybrid cross. Students will examine the process by which heritable characteristics are transferred from parents to offspring and the laws that govern this process.

Required: Stanford et al. 2016. Chapt. 3 (pp. 68-79)


Lecture 6: Human Genetics

Topics: Mutagenesis; Genetic drift; Gene flow; Natural selection; Microevolution vs. Macroevolution.


Lecture 7: Forces of Evolution, Population genetics, and adaptation

Topics: natural selection, gene flow, genetic drift, hybridization; population genetics; adaptation


06/07 (Wed) **Lecture 8: Adaptation to malaria**

Students will learn how variability in hemoglobin genes relates to a critical disease called Malaria, and why and how certain deleterious genes are not eliminated from human populations.


06/07 (Wed) **Lecture 9, Labs 1 & 2: Foundation of Osteology and Bipedalism vs. quadrupedalism**

Topics: osteology; cranial skeleton, post-cranial skeleton, axial skeleton, appendicular skeleton, function and structure of the dentition, eruption patterns, life history


06/08 (Thu) **Lecture 10: Human Skin Pigmentation**

Why do humans have diverse skin colors? In this class we will examine the skin structure, coloration and our adaptation to UV radiation and consider whether the concept of race is a valid one.


06/08 (Thu) **Lab 3: Primate Conservation & Future of zoos** (We will not meet in class)

Required to listen: The Diane Rehm show, The Future of Zoos
http://thedianerehmshow.org/shows/2016-06-21/rethinking-zoos


06/13 (Tue) **Midterm Exam**

All students must bring a laptop with 100% battery to the exam. No tablets or phones should be used.

06/13 (Tue) **Lecture 11: Introduction to Paleoanthropology**

Topics: A brief history of paleoanthropology, fossilization vs. mummification; ancient DNA; Relative and absolute dating methods; Context

http://bit.ly/1dQzm3Q

**Recommended reading:** Fleagle 1998. Chapt. 4-7, Zihlman 2001. 5-1~5-12

**Recommended viewing:** Meave Leakey on Paleontology
http://video.nationalgeographic.com/video/curiosity-meave-leakey

06/14 (Wed) **Lecture 12: Pre-Australopithecines**

Topics: What is a human?


06/14 (Wed) **Lecture 13: Australopithecines**

Topics: Australopithecines; Oldowan tools


06/15 (Thu) **Lab 4: Comparative morphology of the Australopithecines**

Required: Compare *Australopithecus* with *Paranthropus* taxa https://elucy.org/compant/

06/15 (Thu) **Lecture 14: Early Homo**

Topics: *Homo habilis; Homo rudolfensis, Homo erectus, and Homo floresiensis*


06/20 (Tue) **Lecture 15: Archaic *Homo sapiens***

Topics: *Homo heidelbergensis*


06/20 (Tue) **Lecture 16: Neanderthals**

**Topics:** *Homo neanderthalensis*


06/21(Wed) **Lab 5.** Independently visit the AMNH Hall of Human Origins and answer all the questions on the lab

06/22 (Thu) **Lab 6.** Independently watch an online documentary and answer some questions

06/27 (Tue) **Lecture 17: Anatomically modern *Homo sapiens***

**Topics:** The migration of anatomically modern *Homo sapiens* from Africa to the rest of the world – theories and evidence


06/27 (Tue) **Lab 6: Comparative morphology of the genus *Homo***

Students will examine the cranial and post-cranial morphology of various hominins and associated tools and appreciate the fact that the characteristic features of modern humans that clearly separate them from the great apes did not all evolve together. The goals of this lab, therefore, are: (1) to assess evidence for some of these features in the hominin fossils, and (2) to learn to appreciate the nature of variation among the hominins, and (3) to compare the australopiths with the genus *Homo.*


06/28 (Wed)  **Online Final Exam (9-11 am)**