L48 150A
Introduction to Human Evolution

Lecture:
Monday, Wednesday, Friday 1:00 – 1:50 PM
Simon 1

Learning objectives:
A survey of the fossil evidence for human evolution. The course includes discussion of the genetics of human variation and evolution, the study of living non-human primates, and the fossil record and its interpretation. An evolutionary perspective is used in an attempt to understand modern humans from the naturalistic point of view. This course is a requirement of the Anthropology major, and provides a springboard to subsequent classes in Biological Anthropology and Human Biology.

Professor:
David Strait
Office: McMillan Hall 122
Office Hours: Wednesday, 2:00 – 4:00 PM or by appointment
Tel. #: 314-935-7898
E-mail: dstrait@wustl.edu

NOTE: The best way to reach Dr. Strait is by coming to his office hours, or by e-mail. Dr. Strait receives a very high volume of student mail, so you may not get a response immediately. If you require assistance with something urgent, come see him in person.

Assistants to the Instructor:
Yegan Sekhavati
Office: McMillan Hall 302
Office Hours: Tuesday, Noon – 2:00 PM
E-mail: ysekhavati@wustl.edu

Xinzhou Chen
Office: McMillan Hall 309
Office Hours: Thursday, 10:00 AM - Noon
E-mail: xinzhouchen@wustl.edu

Jackie Wagner
Office: McMillan Hall 342
Office Hours: Tuesday and Thursday, 11:30 AM – 12:30 PM
E-mail: jmwagner@wustl.edu
Undergraduate Teaching Assistants:
Bonnie Castleman
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Joanna Chen
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Sienna Sewell
E-mail: sienna.sewell@wustl.edu

Shayana Seneviratne
E-mail: shayana.seneviratne@wustl.edu

Required reading material:

Additional readings are assigned below through online links to articles. NOTE: If the links do not work, try copying and pasting the URL into your browser.

Note that the reading assignments are designed to supplement, not to duplicate the material presented in lecture. Moreover, there will be instances in which the material presented in lecture contradicts or otherwise disagrees with material presented in the texts. In such instances, the material presented in lecture will be considered correct for the purposes of exams.

Requirements:
2 Mid-term exams (each worth 25% of final grade)
1 Final exam (40% of final grade)
Lab assignments (collectively worth 10% of final grade)

Exams will consist of multiple choice questions. The midterm exams are not cumulative, but you should be aware that the material in the earlier parts of the class forms the foundation for the material in the later parts of the class. The final exam will be cumulative. Exams may include questions drawn from lecture, lab, and any of the reading materials.

Disabilities. Washington University is committed to providing equal opportunity to students with disabilities. The Disability Resource Center (DRC) assists students with disabilities by providing services and arranging for reasonable accommodations to ensure
equal access and equal academic opportunities. Students wishing to request services or accommodations must register and provide appropriate documentation to the DRC at cornerstone.wustl.edu. The center proctors exams for those with certified disabilities who need extra time.

Accommodations based upon sexual assault:
The University is committed to offering reasonable academic accommodations to students who are victims of sexual assault. Students are eligible for accommodation regardless of whether they seek criminal or disciplinary action. Depending on the specific nature of the allegation, such measures may include but are not limited to: implementation of a no-contact order, course/classroom assignment changes, and other academic support services and accommodations. If you need to request such accommodations, please direct your request to Kim Webb (kim_webb@wustl.edu), Director of the Relationship and Sexual Violence Prevention Center. Ms. Webb is a confidential resource; however, requests for accommodations will be shared with the appropriate University administration and faculty. The University will maintain as confidential any accommodations or protective measures provided to an individual student so long as it does not impair the ability to provide such measures.

If a student comes to me to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if I otherwise observe or become aware of such an allegation, I will keep the information as private as I can, but as a faculty member of Washington University, I am required to immediately report it to my Department Chair or Dean or directly to Ms. Jessica Kennedy, the University’s Title IX Coordinator. If you would like to speak with the Title IX Coordinator directly, Ms. Kennedy can be reached at (314) 935-3118, jwkennedy@wustl.edu, or by visiting her office in the Women’s Building. Additionally, you can report incidents or complaints to Tamara King, Associate Dean for Students and Director of Student Conduct, or by contacting WUPD at (314) 935-5555 or your local law enforcement agency.

You can also speak confidentially and learn more about available resources at the Relationship and Sexual Violence Prevention Center by calling (314) 935-8761 or visiting the 4th floor of Seigle Hall.

Bias Reporting:
The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University’s Bias Report and Support System (BRSS) team. See: brss.wustl.edu

Mental Health:
Mental Health Services’ professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about
eating or drinking patterns, and feelings of anxiety and depression. See: [shs.wustl.edu/MentalHealth](shs.wustl.edu/MentalHealth)

**Religious Observances:**
If you have religious commitments that overlap with course requirements, please contact Dr. Strait well in advance in order to arrange alternative accommodations.

**Lecture and exam schedule:**

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<thead>
<tr>
<th>Week 1</th>
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<tbody>
<tr>
<td>M 8/26</td>
<td>Introduction</td>
<td>Reading: Stanford Introduction</td>
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<tr>
<td>W 8/28</td>
<td>History and principles of evolutionary biology I: Natural selection</td>
<td>Reading: Stanford Chapter 1</td>
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<td>The 1858 Darwin-Wallace paper (<a href="http://wallacefund.info/the-1858-darwin-wallace-paper">http://wallacefund.info/the-1858-darwin-wallace-paper</a>)</td>
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<tr>
<td>F 8/30</td>
<td>History and principles of evolutionary biology II: Mendelian genetics</td>
<td>Reading: Stanford Chapter 3</td>
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<th>Week 2</th>
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<tr>
<td>M 9/2</td>
<td>LABOR DAY: NO CLASS</td>
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<tr>
<td>W 9/4</td>
<td>DNA: the molecular basis of heredity</td>
<td>Reading: Stanford Chapter 2</td>
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<tr>
<td>F 9/6</td>
<td>Species and speciation</td>
<td>Reading: Stanford Chapter 4</td>
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<td></td>
<td>Why Should We Care About Species? (<a href="http://www.nature.com/scitable/topicpage/why-should-we-care-about-species-4277923">http://www.nature.com/scitable/topicpage/why-should-we-care-about-species-4277923</a>)</td>
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<th>Week 3</th>
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<tr>
<td>M 9/9</td>
<td>Reconstructing evolutionary history</td>
<td>Reading: Reading a phylogenetic tree: the meaning of monophyletic groups (<a href="https://www.nature.com/scitable/topicpage/reading-a-phylogenetic-tree-the-meaning-of-41956">https://www.nature.com/scitable/topicpage/reading-a-phylogenetic-tree-the-meaning-of-41956</a>)</td>
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Trait evolution on a phylogenetic tree: relatedness, similarity, and the myth of evolutionary advancement
(https://www.nature.com/scitable/topicpage/2trait-evolution-on-a-phylogenetic-tree-relatedness-41936)

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<thead>
<tr>
<th>Date</th>
<th>Reading</th>
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| W 9/11 | Principles of geology and paleontology  
*Reading*: Physical Geology Chapter 1: introduction to geology (make sure to advance through the entire chapter)  
(https://opentextbc.ca/geology/part/chapter-1-introduction-to-geology/) |
| F 9/13 | Dating methods  
*Reading*: Stanford Chapter 8, pages 226 – 251. |

**Week 4**

<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
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| M 9/16 | Climate change over deep time  
*Reading*: Introduction to the basic drivers of climate  
(https://www.nature.com/scitable/knowledge/library/introduction-to-the-basic-drivers-of-climate-13368032)  
Milankovitch Cycle, Paleoclimate Change, and Hominin Evolution  
| W 9/18 | Principles of paleoecology  
*Reading*: Stanford Chapter 8, pages 251 – 259 |
| F 9/20 | MIDTERM EXAM #1 |

**Week 5**

**NOTE:** LAB 1 (BONE LAB) MEETS DURING WEEK 5. **READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU**

<table>
<thead>
<tr>
<th>Date</th>
<th>Reading</th>
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| M 9/23 | Basics of human osteology  
*Reading*: Stanford Appendix B |
| W 9/25 | Primate diversity I  
*Reading*: Characteristics of crown primates  
(http://www.nature.com/scitable/knowledge/library/characteristics-of-crown-primates-105284416) |
| F 9/27 | Primate diversity II  
*Reading*: Stanford Chapter 6, pages 160 – 170 |
Week 6

M  9/30  Primate ecology and behavior  
   Reading: Stanford Chapters 6 & 7, pages 192 – 225

W  10/2  Primate functional anatomy: locomotion  
   Reading: Primate Locomotion  
   (http://www.nature.com/scitable/knowledge/library/primate-locomotion-105284696)

F  10/4  Primate functional anatomy: diet  
   Reading: Primate teeth and plant fracture properties  

Week 7

NOTE: LAB 2 (PRIMATE LAB) MEETS DURING WEEK 7. READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU

M  10/7  Strepsirrhines and Tarsiers  
   Reading: Stanford Chapter 6, pages 170 – 177

W  10/9  Platyrrhines  
   Reading: Stanford Chapter 6, pages 177 – 180

F  10/11 Cercopithecoids  
   Reading: Stanford Chapter 6, pages 180 – 183

Week 8

M  10/14 FALL BREAK: NO CLASS

W  10/16 Hominoids  
   Reading: Stanford Chapter 6, pages 183 – 192

F  10/18 Primate evolution  
   Reading: Stanford Chapter 9, pages 260 – 290  
   Effects of climate change on primate evolution in the Cenozoic  
   (https://www.nature.com/scitable/knowledge/library/effects-of-climate-change-on-primate-evolution-141807385)

Week 9

M  10/21 MIDTERM EXAM #2
W  10/25  The history of paleoanthropology
     Reading: Light has been thrown (on human origins)
     (http://www.fupress.net/index.php/aisthesis/article/view/13767/12799)

F  10/25  Early human evolution

Week 10

M  10/28  The climatic context of human evolution
     Reading: Climate and human evolution
     (http://science.sciencemag.org.libproxy.wustl.edu/content/sci/331/6017/540.full.pdf)

W  10/30  The origin of bipedalism
     Reading: Stanford Chapter 10, pages 291 – 297, 303 – 307

F  11/1  The pre-australopiths.
     Reading: Stanford Chapter 10 pages 297 – 303

Week 11

M  11/4  The australopiths I
     Reading: Stanford Chapter 10 pages 307 – 320

W  11/6  The australopiths II
     Reading: Stanford Chapter 10 pages 320 – 330

F  11/8  The origin of the genus Homo.
     Reading: Stanford Chapter 11 pages 331 – 341

Week 12

M  11/11  Tool-use and the functional anatomy of the hand
     Reading: Archaeology and Human Evolution
     (http://link.springer.com/article/10.1007/s12052-010-0246-9  click the link to “Download PDF”)

W  11/13  Later human evolution

F  11/15  Homo erectus and its descendants
     Reading: Stanford Chapter 11 & 12 pages 341 – 379
### Week 13

**NOTE:** LAB 3 (FOSSIL LAB) MEETS DURING WEEK 13. READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>W</td>
<td>11/20</td>
<td>Anatomically modern humans</td>
<td>Stanford Chapter 13 pages 411 – 425</td>
</tr>
<tr>
<td>F</td>
<td>11/22</td>
<td>Evolution of the brain &amp; language</td>
<td>Stanford Chapter 14, Appendix A</td>
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### Week 14

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<tr>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>W</td>
<td>11/27</td>
<td>THANKSGIVING BREAK: NO CLASS</td>
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</tr>
<tr>
<td>F</td>
<td>11/29</td>
<td>THANKSGIVING BREAK: NO CLASS</td>
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### Week 15

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<tr>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>W</td>
<td>12/4</td>
<td>Climate change now</td>
<td>Executive Summary Highlights of the findings of the US global change research program Climate Science Special Report (<a href="https://science2017.globalchange.gov/chapter/executive-summary/">https://science2017.globalchange.gov/chapter/executive-summary/</a>)</td>
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</tbody>
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Week 17

W  12/18  FINAL EXAM
NOTE THE TIME AND PLACE:  1:00 – 3:00 PM IN SIMON 1

Lab organization and schedule:
All students will participate in three one-hour labs, each of which takes place in a different week of the course. These labs do not occur during the regularly scheduled lecture times. For each lab, students will receive an email inviting them to sign up for a lab section online. Sections are available on a first-come-first-served basis (see schedule below). Once a student signs up, they may not change their section except under extraordinary circumstances.

Attendance at the lab is mandatory. At lab, you will complete an assignment that will be handed in at the end of lab and graded. The lab assignments are posted on Canvas, and you should print out a copy and bring it to lab with you to complete.

All Lab Sections meet in McMillan Hall room G-056 (in the ground floor across from the parking garage).

Lab 1: Bone Lab

REMEMBER TO READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU!

Section 1:  Th, 9/26, 4 – 5PM
Section 2:  Th, 9/26, 5 – 6PM
Section 3:  Th, 9/26, 6 – 7PM
Section 4:  Th, 9/26, 7 – 8PM
Section 5:  F, 9/27, 8 – 9AM
Section 6:  F, 9/27, 9 – 10AM
Section 7:  F, 9/27, 10 – 11AM
Section 8:  F, 9/27, 11 – Noon
Section 9:  F, 9/27, Noon – 1PM
Section 10:  F, 9/27, 2 – 3PM
Section 11:  F, 9/27, 3 – 4PM
Section 12:  F, 9/27, 4 – 5PM
Lab 2: Primate Lab

REMEMBER TO READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU!

Section 1: Th, 10/10, 4 – 5PM
Section 2: Th, 10/10, 5 – 6PM
Section 3: Th, 10/10, 6 – 7PM
Section 4: Th, 10/10, 7 – 8PM
Section 5: F, 10/11, 8 – 9AM
Section 6: F, 10/11, 9 – 10AM
Section 7: F, 10/11, 10 – 11AM
Section 8: F, 10/11, 11 – Noon
Section 9: F, 10/11, Noon – 1PM
Section 10: F, 10/11, 2 – 3PM
Section 11: F10/11, 3 – 4PM
Section 12: F, 10/11, 4 – 5PM

Lab 3: Fossil Lab

REMEMBER TO READ THE LAB BEFORE COMING TO CLASS, AND PRINT AND BRING LAB HANDOUT TO LAB WITH YOU!

Section 1: Th, 11/21, 4 – 5PM
Section 2: Th, 11/21, 5 – 6PM
Section 3: Th, 11/21, 6 – 7PM
Section 4: Th, 11/21, 7 – 8PM
Section 5: F, 11/22, 8 – 9AM
Section 6: F, 11/22, 9 – 10AM
Section 7: F, 11/22, 10 – 11AM
Section 8: F, 11/22, 11 – Noon
Section 9: F, 11/22, Noon – 1PM
Section 10: F, 11/22, 2 – 3PM
Section 11: F, 11/22, 3 – 4PM
Section 12: F, 11/22, 4 – 5PM