Course Objectives
This course reviews in detail human skeletal anatomy for the proper identification of the bones in the body, their biomechanical articulations and their relationship with the muscular system. Focus is then directed to studying forensic methods and techniques for the estimation of age at death, determination of chromosomal sex, the study of morpho-metric and non-metric variation in the skeleton, assessment of bone remodeling, cultural modifications to bone, and the impact of environmental processes on bony tissue. Hands-on laboratory sessions will involve team analysis of human remains from the comparative collection in the Archaeology Laboratory at Brandeis.

Learning Goals
The learning goals of the course is for students to have full command of human skeletal anatomy and of basic forensic techniques, to learn how to design and carry out scientifically oriented research, and to practice how to do teamwork during the class project. Research involves the use of both quantitative and qualitative approaches, the formulation of explicitly stated hypotheses, and their rejection on the bases of the analysis of evidence. In addition, students will have the opportunity to further develop their analytical and synthetic abilities, as well as hone in on their writing skills.
**Course Outline** (*readings with an asterisk require students to generate two or three questions for class discussion*)

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Topics</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan W 13</td>
<td>Introduction to the course</td>
<td>None</td>
</tr>
<tr>
<td>Jan W 20</td>
<td>Generalities</td>
<td>Krogman 1959 *; Bass 1987</td>
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<tr>
<td></td>
<td>The Skull</td>
<td>Schwartz pp. 1-12 and Chap 2</td>
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<tr>
<td>Jan M 25</td>
<td>The Skull (cont.)</td>
<td>Schwartz Chap 3</td>
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<tr>
<td>Jan W 27</td>
<td>The Skull (cont.)</td>
<td>Scheuer &amp; Black Chapter 4</td>
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<tr>
<td>Feb M 1</td>
<td>Dentition</td>
<td>Schwartz Chapter 7</td>
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<td>Scheuer &amp; Black Chapter 5</td>
</tr>
<tr>
<td>Feb W 3</td>
<td>Postcranium: Axial skeleton</td>
<td>Schwartz Chapter 4</td>
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<tr>
<td></td>
<td><em>Lecture by Sarah Schofield-M</em></td>
<td>Scheuer &amp; Black Chapters 6-7</td>
</tr>
<tr>
<td>Feb M 8</td>
<td>Postcranium: Upper extremities</td>
<td>Schwartz Chapter 5</td>
</tr>
<tr>
<td>Feb W 10</td>
<td>Postcranium: Upper extremities</td>
<td>Scheuer &amp; Black Chapters 8-9</td>
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<tr>
<td>Feb M 22</td>
<td>Postcranium: Lower extremities</td>
<td>Schwartz Chapter 6</td>
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<tr>
<td>Feb W 24</td>
<td>Postcranium: Lower extremities</td>
<td>Scheuer &amp; Black Chapters 10-11</td>
</tr>
<tr>
<td>Feb M 29</td>
<td>Postcranium: Lower extremities</td>
<td>Scheuer &amp; Black Chapters 10-11</td>
</tr>
<tr>
<td>Mar W 2</td>
<td><strong>FIRST EXAM</strong></td>
<td>None</td>
</tr>
<tr>
<td>Mar M 7</td>
<td>Laboratory project begins</td>
<td>Ubelaker 1989: 35-38, 2002 and 2009; Gejvall 1963; Jaeger and Johansen 2013 (all *)</td>
</tr>
<tr>
<td>Mar W 9</td>
<td>Exam review</td>
<td>None</td>
</tr>
<tr>
<td>Mar M 14</td>
<td>Forensic techniques: Assessment of age at death part 1</td>
<td>Ubelaker 1989: 63-95</td>
</tr>
<tr>
<td>Mar W 16</td>
<td>Forensic techniques: Assessment of age at death part</td>
<td>Iscan and Loth 1989</td>
</tr>
<tr>
<td>Mar M 21</td>
<td>Forensic techniques: Determination of chromosomal sex</td>
<td>Ubelaker 1989: 52-60</td>
</tr>
<tr>
<td>Mar W 23</td>
<td>Metric and non-metric variation</td>
<td>Ubelaker 1989: 60-63; Lewis et al. 2011; Mays 1998; Turner 1989</td>
</tr>
<tr>
<td>Date</td>
<td>Activity</td>
<td>Relevant References</td>
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<tr>
<td>Mar W 30</td>
<td>Bone remodeling part 1</td>
<td>Schwartz pp. 12-27; view documentary: The true story of John Merrick; Montagu, pp. 79-93 &amp; figs. in Appendix 6; Cohen 1987; Bilkay et al. 2003; Legendre et al. 2011; de Souza 2012</td>
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<tr>
<td>Apr W 6</td>
<td>SECOND EXAM</td>
<td>None</td>
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<tr>
<td>Apr M 11</td>
<td>Laboratory session</td>
<td>Shipman et al. 1984; Bohnert et al. 1998; Williams 2004 (all *)</td>
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<tr>
<td>Apr W 13</td>
<td>Skeletal Cultural modifications</td>
<td>Ubelaker 1989: 96-107; Verano 2003; Duncan and Hofling 2011</td>
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<tr>
<td>Apr M 18</td>
<td>Skeletal taphonomy</td>
<td>Haglund 2001; Gould 2002; view documentary: Iceman Murder Mystery</td>
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<tr>
<td>Apr W 20</td>
<td>Ethics and the study of human remains</td>
<td>Meighan vs Gulliford 1992; Meighan vs Zimmerman 1994; Jones and Harris 1998; view documentary: Mystery of the First Americans</td>
</tr>
<tr>
<td>May M 2</td>
<td>Laboratory session and clean-up</td>
<td>None</td>
</tr>
<tr>
<td>May F 6</td>
<td>Final paper due no later than 12:00</td>
<td>None</td>
</tr>
</tbody>
</table>

**Students with extra challenges**

If you are a student with a documented disability at Brandeis University and if you wish to request a reasonable accommodation for this class please see me immediately. Keep in mind that reasonable accommodations are not provided retroactively.

**Four-Credit Course (with three hours of class-time per week)**
Success in this 4 credit hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, response to questions, preparation for discussions, writing of papers, preparation for exams, etc.).

**Use of Laptops, tablets, and other devices**
You are welcomed to use a personal Laptop or tablet for note taking and researching. If a student is found using these devices for purposes other than those related to the class, his or her privilege for using it will be immediately suspended for the rest of the semester. The use of mobile phones (calls and text messaging) is not allowed.
Class attendance
Students who miss classes need to notify their absence well in advance and if necessary present relevant evidence. No more than two unexcused missed classes will be accepted; otherwise the final grade goes down half a letter for each additional missed class.

Assignments and Grading
- Class Participation
In some sessions students are expected to participate in discussions. Participation in class carries extra credit. You will reflect critically on the readings marked with an asterisk and generate questions about those materials. You should prepare and write two or three thoughtful questions that both reflect your comprehension of the readings and highlight salient points that you think will contribute to the discussion of the readings. Participation is graded based on the submissions of your questions.

- Exams
There will be two exams, one on Wednesday March 2nd and the other on Wednesday April 6th. The first exam counts 25% of the grade, while the second counts 30% of the final grade. Each examination will consist of bone stations requiring the identification of complete and partial human bones. The second exam will have, in addition, bone stations requiring the application of forensic techniques to make inferences about age, sex, bone remodeling, and natural or cultural modification to bone. The anatomical component of the exams is accumulative in order to reinforce your knowledge of skeletal anatomy. Students are required to use pencil and eraser when doing the exams, and can bring the textbook, class notes, or any other materials they deem necessary. In addition, comparative materials will be available during the test for hands-on consultation.

- Viewing of documentaries
During the course students are expected to view three video documentaries and prepare responses to a set of questions revolving around them. Answering some of the questions involves as well the concomitant reading of assigned articles. The submission of the responses and their assessment counts 10% of the total grade. The documentaries are available at the following links:

1- The True Story of John Merrick – https://www.youtube.com/watch?v=PUj8y0sCU2w
2- Iceman Murder Mystery – https://www.youtube.com/watch?v=X05-uMWzAhA
3- Mystery of the First Americans - https://www.youtube.com/watch?v=6iklMcO2xrU

- Project Paper
The analysis of commingled remains from the small comparative collection of human remains in the Archaeology Laboratory at Brandeis will be conducted and submitted as group projects. On Monday April 18th each group will turn in a printed draft of the final paper for revision. The draft will be returned on Wednesday April 20th. The final version of the paper is due on Friday May 6th no later than 12:00 pm. Papers should be 6-8 pages of text, not including the bibliography. Photographs, illustrations, and diagrams are encouraged. Both a printed and an electronic version of the text and images, as well as the raw data in an Excel table should also be submitted. The term paper contributes 35% of the final grade, with a letter subtracted each
subsequent day if the paper is turned in after the submission deadline. No papers will be accepted after Monday May 9th at 5pm. **Papers should follow the stylistic and formatting guidelines of the SSA (Society for American Archaeology).** These guidelines can be accessed at [http://www.saa.org/StyleGuideText/tabid/985/Default.aspx](http://www.saa.org/StyleGuideText/tabid/985/Default.aspx)

The grading of the papers will be based on their content, the logic of the argumentation, the relationship between stated hypotheses and data used to test them, the lucidity of the writing, and on the adherence to the stylistic and formatting guidelines.

**Summary of grading**

- First exam: 25%
- Second exam: 30%
- Video assessments: 10%
- Project paper: 35%
- Participation in class: extra credit

**Academic integrity**

Academic integrity is central to the mission of educational excellence at Brandeis University. Each student is expected to be familiar with, and to follow, the University’s policies on academic integrity. Please consult Brandeis University *Rights and Responsibilities* ([http://www.brandeis.edu/studentaffairs/srcs/rr/](http://www.brandeis.edu/studentaffairs/srcs/rr/)) for all policies and procedures. All policies related to academic integrity apply to in-class and take home projects, assignments, exams, and quizzes. Students may only collaborate on assignments with express permission. Allegations of alleged academic dishonesty will be forwarded to the Director of Academic Integrity. Sanctions for academic dishonesty can include failing grades and/or suspension from the university.

**Required texts (available at the University's bookstore)**

Schwartz, Jeffrey, H.  

**Additional course readings (some available also at Library Reserve)**

Anawalt, R. Patricia  

Bass, William M.  

Bilkay, Ufuk, C. Tokat, C. Ozek, H. Gundogan, O. Erdem, T. Gurler, and A. Cagdas  
Bohnert, Michael, Thomas Rost, and Stefan Pollak  

Cohen, Michael M.  

Cook, S.F.  

De Souza, RAG  

Duncan, William N., and Charles Andrew Hofling  

Gejvall, Nils-Gustaf  

Gould, Richard A.  

Haglund, William, D,  

Harner, Michael  

Iscan, Mehmet Yasar, and Susan R. Loth  

Jaeger, Jonas Holm, and Veronica Liv Johansen  

Jones, Gareth, and Robyn Harris  
Krogman, Wilton M.  

Legendre, Claire-Marie, C. Charpentier-Coté, R. Drouin, and Ch. Bouffard  
2011  Neurofibromatosis Type 1 and the “elephant Man’s Disease: The Confusion Persists: An Ethnographic Study. Plos ONE 6(2): e16409. doi:10.1371/journal.pone.0016409


Mays, Simon  

Meighan, Clement W., and Andrew Gulliford  

Meighan, Clement W., and Larry Zimmerman  
1994  Burying American Archaeology/ Sharing Control of the Past. Archaeology, November/December, pp.64-68.

Montagu, Ashley  

Ortiz de Montellano  

Ortner, Donald, J.  

Scheuer, Louise and Sue Black  

Shipman, Pat, Giraud Foster, and Margaret Schoeninger  
Thompson, T. J. U.

Tiesler, Vera, and Andrea Cucina

Turner, Christy G. II

Ubelaker, Douglas


Verano, John

Wells, C.

Williams, Howard


*Suggested partial bibliography for project paper*

Andrews, John P.
Binford, L.R.


Fitting, James, E

Graves, Arthur H.

Greenman, Emerson Frank

Halsey, John, R. (editor)

Krakker, James J.
n.d. *Mortuary Patterns at the Frazer Site (20SA9), Saginaw County, Michigan*. Unpublished manuscript.

Muhammad, Allison June

Murphy Carl, and Neal Ferris

Tainter, Joseph A.

Stothers, David M.
Stothers, David M., Scott Lozanoff, and William W. Baden  
1978 Middle to Late Woodland Biological Continuity within the Western Basin Tradition. *Toledo Area Aboriginal Research Bulletin*, vol. 7 (1-2): 1-72. (excerpts only).

Vehik, Susan C.  

**Recommended Bibliography**

Baker, Brenda and Lisa Kealhofer  

Binford, L.R.  

1987 *Death, decay and reconstruction: approaches to archaeology and forensic science*. Manchester University Press, Manchester.

Brothwell, Donald  

Brothwell, Donald and A.T. Sandison  

Grant, J.C.B.  

Hauser, G. and DeStefano, G.F.  

Iscan, M.Y.  

Klepinger, Linda L.  
Leney, Clark, D.  
2006  Sampling Skeletal Remains for Ancient DNA (aDNA): A Measure of Success.  
Historical Archaeology 40 (3): 31-49.

Krogman, Wilton  

Larsen, Clark S.  

Mann, Robert W. and Sean P. Murphy  

Owsley, Douglas and Richard Jantz  

Powell, Mary Lucas, P.S. Bridges, and A.M.W. Mires  

Reichs, K.J. (editor)  

Rhine, Stanley  

Roberts, Charlotte, and Keith Manchester  

Saunders, Shelley R., and Anne Katzenberg  

Saunders, Shelley R. and Ann Herring (editors)  

Schurr, Mark R.  
Steinbock, R. Ted

Steele, D. Gentry

Stewart, T.D.

Ubelaker, Douglas H.

White, Tim D.

Sinclair, David

Sidney Smith

Verano, John, and Douglas Ubelaker

Verano, John, and Douglas Ubelaker (editors)
1992  *Disease and Demography in the Americas*. Smithsonian Institution Press, Washington D. C.