Department of Anthropology

ANTH 3338F

Skeletal Biology

Course Outline

Fall 2017

Class time: Wednesday 10:30am – 1:30pm

Classroom: SSC 2257

Instructor: Dr. Andrea Waters-Rist

Office: SSC 3427

Email: awaters8@uwo.ca

Office Hours: Tuesday 1:00-3:00pm
or by appointment

TA: Katya Valladares

Office: tba

Email: kvallad@uwo.ca

Office Hours: tba

Credit Value: 0.5

Prerequisite: Anthropology 2226A/B and registration in year 3 or 4 in any module.

Anti-requisite: --

Unless you have either the requisites for this course or written special permission to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Required Textbooks:

- White TD and Folkens PA. 2005. The Human Bone Manual. Academic Press.
- Buikstra J and Ubelaker D. 1994. Standards for Data Collection from Human Skeletal Remains. Arkansas Archaeological Survey.

Course Description:

This course involves the in-depth study of human skeletal and dental remains. Human skeletal biology, or osteology, is essential for research in biological or forensic anthropology. This course will cover several topics including: 1) bone and tooth biology and histology; 2) skeletal and dental growth and development; 3) metrics and non-metric traits; 4) estimation of core osteobiographical characteristics such as age-at-death, sex, and stature; 5) data collection techniques and written reporting; 6) an introduction to paleodiet, paleodemography, taphonomy, and paleopathology, and; 7) ethical considerations. At the completion of this course students will be expected to have mastered techniques for conducting, interpreting, and reporting upon human osteological analyses. After week 1,

each week's class will consist of approximately one hour of lecture and two hours of hands-on laboratory time.

Learning Outcomes
Upon successful completion of this course, students will be able to:

- Identify all bones, teeth, and major morphological features, of the human skeleton, in complete and fragmented conditions;
- Identify common non-metric traits to build towards an understanding of the range of normal human skeletal variation;
- Describe the cellular properties and appearance of bone and teeth;
- Utilize measurement instruments (e.g. sliding and spreading calipers, osteometric board) and data recording forms and techniques;
- Distinguish non-adult from adult remains;
- Estimate non-adult and adult age-at-death using dental and skeletal methods;
- Estimate sex from adult cranial and post-cranial material;
- Estimate stature and body size using anthropometric measurements;
- Explain methods for the estimation of biological ancestry (population affiliation) and biodistance;
- Recognize commonly encountered pathological and traumatic lesions in bones and teeth as well as taphonomic conditions that can mimic pathological lesions;
- Describe basic paleodiet and palaeodemography parameters and problems;
- Present an informed consideration of ethical dimensions of human osteoarchaeology research

Course Assignments:

- Bone Bell-Ringer 1 (cranium, dentition, histology): **20%** (Oct. 4th *in class*)
- Bone Bell-Ringer 2 (post-cranium): **20%** (Nov. 1st *in class*)
- Laboratory Report 1 (estimation of age-at-death and sex): **15%** (Nov. 17th *submit in OWL*)
- Laboratory Report 2 (metrics and stature estimation and non-metrics): **15%** (Dec. 1st *submit in OWL*)
- Final Exam: **30%** (short and long answer essay questions) (date and time tba)

University Policies and Information:

All students should familiarize themselves with Western's current academic policies regarding **accessibility, plagiarism and scholastic offences, and medical accommodation.** These policies are outlined, with links to the full policies, at: http://anthropology.uwo.ca/undergraduate/course_information/academic_policies.html

Course Policies:

Use of Electronic Devices:

Laptops may be used during lectures for note taking or other course-related purposes. Laptops should be put away during lab time to prevent damage (to the machine itself and skeletal material). Voice recorders are not allowed without express permission. Cell-phones, iPods, MP3 players and other such devices are not permitted to be used during class (not during lecture or lab time). Disruptive use of electronic devices during lecture or laboratory time may result in instruction to leave the

classroom. No electronic devices of any kind (including laptops) are allowed during tests and examinations.

Missed Tests and Late-Marks:

Refer to the link above for policies regarding the make-up of missed tests or exams. There will be no exceptions to those policies, and make-up tests/exams will only be offered once the Academic Counselling Office has approved special accommodation.

Laboratory assignments submitted past the due date will be subjected to a 5% penalty per 24-hour period (this includes weekends) and will no longer be graded after 5 late days (the assignment will receive an automatic grade of 0).

OWL Portal:

This course is supplemented by the OWL leaning management system. On the course site you will find links to course content (including readings not found in the required textbooks), course announcements, lecture slides, and supplementary material. The two laboratory reports should be uploaded via OWL (with a hard-copy then submitted on the subsequent day of the work week; if the assignment is due on Friday it is fine to submit the hard-copy on Monday).

Classroom Behaviour:

This course involves the hands-on examination of real human skeletal material, from a range of times and places. Use of this material is a privilege that should be respected via responsible handling and proper reporting. Repeated inappropriate behaviour will result in a request to withdraw from the course. Photography of the material is not permitted except with explicit permission of the instructor for use only within laboratory assignments.

Students who do not complete readings and attend all lectures and lab times should not expect to do well in this course.

Extra Open Lab-Time:

In order to help you do well on your bone bell-ringer tests and satisfactorily complete all elements of your laboratory reports, most weeks there will be an extra 2-hour 'open-lab' period. These will be attended by the TA or the Instructor and specific times will be arranged the first week of class.

Course Assignment Details:

Bone Bell-Ringer Tests (20% each; 40% of total)

There are TWO bell-ringer tests in this course. The bell-ringer is a timed test that will assess your practical knowledge. Bell-ringer tests consist of timed stations at which students are asked to identify any of the following: a) bones and teeth, in complete or incomplete (fragmented) states, b) landmarks on bones and teeth, c) anatomical region/side of the body from which they derive, d) bone or tooth cells or zones of cellular activity, e) other relevant aspects of the remains taught during the first six lectures.

Mastery of skeletal and dental anatomy is key to your success in this course. Do not underestimate the amount of time needed to memorize the anatomical terms and biological processes required. Developing a 'hands-on', tactile familiarity with the remains will markedly improve your recognition and recall. This is why laboratory time

(both as a part of the normal, weekly 3-hour time-slot and the extra 'open-lab') time is strongly emphasized. You will not be nearly as successful as you could be if you only learn the material from books and diagrams. Tips for rote memorization can be found on the course OWL page.

Laboratory Reports (15% each; 30% of total)

There are also TWO laboratory reports in this course. These reports will give you experience (a) conducting detailed analyses of human skeletal remains using standard methods and recording formats, and (b) writing a thorough yet concise descriptive technical paper according to professional standards. More detail on the content of each laboratory report will be given in class, but common subject headings will be Objectives (Introduction), Materials, Methods, Results, Discussion, Conclusion, and References Cited. Each report should be 5-7 pages of double-spaced text (around 1400-1600 words) in length, not including tables, figures or references cited.

The two laboratory reports must be uploaded via OWL with a hard-copy then submitted on the subsequent day of the work week (i.e. if the assignment is due on Friday it is fine to submit the hard-copy on Monday). The hard copy can be submitted to the Department's assignment dropbox (be sure to indicate your name, the course number, and the instructor's name on the assignment).

Final Exam (30% of total)

There will be ONE final exam for this course, to be scheduled by the Registrar. The content of the final exam will be derived from lectures and mandatory course readings. The format of the exam will consist of short and long answer essay questions. There will be minimal emphasis on the rote memorization of skeletal or dental material (i.e. no solo identification questions), however, this knowledge will aid you in excelling on the essay questions.

Course Schedule

Date	Lecture Topics	Laboratory Tasks	Test / Assignment	Mandatory Readings*
Sept 13	- Course Introduction - Anatomical Terms - Bone Biology & Histology - Ethics Questionnaire	- Cranium - Histology		W&F: 1, 3, 4, 6
Sept 20	- The Cranium	- Cranium - Histology		W&F: 7
Sept 27	- The Dentition	- Dentition		W&F: 8
Oct 4	- The Apical Skeleton (vertebrae, thorax, shoulder girdle)	*(none; bell-ringer)*	Bone Bell-Ringer 1 (20%) (begins at 10:40 SHARP!)	W&F: 9, 10
Oct 11	READING WEEK: NO CLASS			

Oct 18	- The Appendicular Skeleton (upper limb, pelvic girdle)	-Post-Cranium (Vertebrae, Thorax & Shoulder Girdle)		W&F: 11, 12, 13
Oct 25	- The Appendicular Skeleton (pelvic girdle con't, lower limb)	- Post-Cranium (Upper Limb, Pelvic Girdle, Lower Limb)		W&F: 14, 15, 16
Nov 1	- Estimation of Sex	*(none; bell-ringer)*	Bone Bell-Ringer 2 (20%) (begins at 10:40 SHARP!)	W&F: 19 p. 360-384 B&U: 3
Nov 8	- Estimation of Age-at-Death	- Estimation of Age-at-Death and Sex		W&F: 19 p. 385-397 B&U: 4
Nov 15	- Metrics and Non-Metrics (Stature and Body Size Estimation)	- Estimation of Age-at-Death and Sex	Laboratory Assignment 1 (15%) due Nov. 17th by 5pm	W&F: 19 p. 398-400; 404-410 B&U: 7
Nov 22	- Metrics and Non-Metrics (Biological Population Affiliation)	- Recording of Metrics and Non-Metrics; Estimation of Stature & Population Affiliation		W&F: 19 p. 400-404 B&U: 8
Nov 29	- Paleodemography - Paleodiet	- Recording of Metrics and Non-Metrics; Estimation of Stature & Population Affiliation	Laboratory Assignment 2 (15%) due Dec. 1st by 5pm	W&F: 19, p. 411-418 **chapter by Hefner et al. (2016) available via OWL
Dec 6	- Taphonomy - Paleopathology - Ethics Discussion	- Short instructor-led demonstration of 'pseudopathology' and pathological and traumatic lesions		W&F: 17 B&U: 9, 10
EXAM PERIOD (Dec 10-21) Final Exam (30%): date to be announced				

NOTE: Bell-ringers will start 10 minutes after the beginning of normal class-time, so at 10:40am sharp. Students who arrive late will not be permitted to make-up the stations they missed. Bell-ringers will be followed by a lecture.

*W&F=White and Folkens, The Human Bone Manual; B&U=Buikstra and Ubelaker, Standards for Data Collection from Human Skeletal Remains

**J.T. Hefner, M.A. Pilloud, J.E. Buikstra, C.C.M. Vogelsberg. 2016. Chapter 1 – A Brief History of Biological Distance Analysis. In: Biological Distance Analysis: Forensic and Bioarchaeological Perspectives. Pilloud & Hefner (eds). Pp. 3-22. (Chapter posted on OWL).