

## Archaeology 595: Problems in Paleopathology and Paleonutrition

**Instructor: Andrea Waters-Rist**

Class Lecture and Seminar: Tues. & Thurs. 12:30-1:45pm. Classroom: Social Sciences 117.

Office Hours: Mon 10:00-12:00pm, or by appt.; Office: ES 752; Office phone: 403-220-2591; e-mail: awaters@ucalgary.ca

**Course Description:** This course will explore patterns of disease in prehistoric human populations with consideration to the interaction of health and nutrition. We will investigate what can and cannot be learned about human health and disease through the analyses of skeletal and dental remains from archaeological contexts. Techniques for determining disease and nutrition from prehistoric remains are covered. In addition, the skeletal and dental marks of disease, injury and diet are a source of evidence about the broader context in which they occurred (e.g. – changing environments, exposure to new pathogens, population size and density, conflict between groups, domestication of plants and animals ect.) and we will explore these broader aspects of past groups. Paleopathology – the study of ancient disease – constitutes the major focus of this class and will be covered from weeks 1 to 9. Paleonutrition – the study of ancient diet – is discussed in weeks 10 and 11 with an emphasis on how this research contributes to larger hypotheses about past human health and adaptation.

This is a senior undergraduate level seminar which combines bi-weekly lectures (first half of each class, approx. 30 minutes) followed by class discussion of assigned readings and the topic at hand. Each student is expected to have completed all the assigned readings prior to each class. Blackboard will be used to provide class updates and links for pdf articles and assignments. I will not post my power point presentations or lecture notes.

**Prerequisite:** Pure Mathematics 30; Archaeology 203 or consent of the Department. Archaeology 555 is strongly recommended.

**Required Textbooks and Course-Packs:**

1. Roberts, C. and Manchester, K. (2005) *The Archaeology of Disease*. 3rd edition. Ithaca: Cornell University Press (new 29.85\$)
2. McMichael, T. (2001) *Human Frontiers, Environments and Disease: Past Patterns,*

*Uncertain Futures*. Cambridge: Cambridge University Press. (new 64.95\$; used 48.75\$)

3. Archaeology 595 Course-Pack, prepared by Andrea Waters-Rist. (2010) Available at the University of Calgary Bookstore (23.99\$).
4. Several articles not contained in the course-pack will be made available as pdf files. Links to these pdf articles can be found on Blackboard under 'course documents'.

**Recommended Textbooks:**

1. Ortner, DJ. (2003) *Identification of Pathological Conditions in the Human Skeletal Remains*, 2<sup>nd</sup> edition. San Diego CA: Academic Press/Elsevier. Full text is internet accessible through University of Calgary libraries; R134.8 e-library.
2. Aufderheide, AC and Rodrigues-Martin C. (1998) *The Cambridge Encyclopedia of Human Paleopathology*. Cambridge: Cambridge University Press. MacKimmie library R134.8.A93, 2LB Reference collection.

**Grades:**

A+.....95%	B.....75-79%	C.....60-62%
A.....90-94%	B-.....70-74%	D+.....55-59%
A-.....85-89%	C+.....66-69%	D.....50-54%
B+.....80-84%	C.....63-65%	F.....≤49%


**Requirements and Grading:**


Class Participation (including questions).....	20%
Paleopathology Diagnosis Report.....	10%
Leading Class.....	20%
Poster.....	20%
Poster Presentation and Questions.....	5%
Final Exam (3 essay questions).....	25%





Class Participation is mandatory. After week 1 students are required to bring with them to class one comprehensive 'question' they've developed for each assigned chapter or article that is designed to stimulate discussion and debate. You may be called

upon to read your question if class discussion is slow. Your questions will be handed in at the end of class.


 You will be given a package containing photographs of pathological bony lesions in a skeleton and a description of the osteological and bioarchaeological context of the burial. Your job is to write a concise 4-5 page report (I will stop reading past page 5, references not included), using the method of differential diagnosis, to identify the most likely disease that caused the lesions. More details about this assignment are posted on blackboard. Due February 4<sup>th</sup> at the beginning of class.

 Every student is expected to lead one class. This involves presenting the topic via a power point presentation of least 30 minutes, and leading the questions and discussion of the topic during the latter half of the class. A sign-up sheet will be passed around during the first week of classes - there are 13 different topics to choose from (see the class schedule for more information). In addition to the readings that are already assigned for that week the student(s) is/are responsible for assigning one additional research article to the class that provides an example of their topic in an archaeological context. The research article must be approved by the instructor and made known to the class (the instructor will post a link to the article on blackboard) no later than one week before the class. A list of acceptable journals from which to choose your article is posted on blackboard.

 Every student is responsible for the creation of an academic poster using PowerPoint or Adobe Acrobat. They cannot choose the same topic as the class they led. Poster topic ideas will be suggested in class. Instructor approval of your poster topic is required by March 18<sup>th</sup>. Further specification of poster requirements (e.g. – less than 1500 words, required headings, use of figures and tables, page dimensions, recommended font size ect.) is posted on blackboard.

 Each student will be required to present their poster in class (it will be projected onto a screen) and give a four-minute oral summary. You will be cut-off after four minutes. There will be two additional

minutes allotted for questions from your instructor and/or fellow students.

 A three-hour final examination will be scheduled during the Winter term exam period. You will be provided with a list of eight possible essay questions on the last day of classes. On the exam five of these questions will be listed and you are required to answer three of them. The final exam questions will require that you are familiar with subjects covered throughout the entire class. Thus, you will be tested on material from week 1 all the way through to week 12 (and this includes the classes led by your fellow students).

Academic Regulations: Details regarding academic regulations at the University of Calgary, including policies for students with disabilities, the statement on principles of conduct and intellectual honesty, final examination rules ect., are available at: <http://www.ucalgary.ca/pubs/calendar/current/academic-regs.html>

Attendance: Attendance of every class is mandatory. While I will not keep attendance I will require you to hand in your chapter/article questions after each class thereby keeping track of your attendance (or at least your participation should you choose to attend class without having prepared any questions). Notify me as soon as possible via e-mail if you are unable to attend a class due to illness or other serious personal emergencies. As it is not possible to re-schedule the class you are leading, nor the day and time of your poster presentation, only MAJOR extenuating circumstances will be taken into consideration, and an additional assignment will need to be completed if the student does not want to receive a grade of zero. An unexcused absence will result in a grade of zero that cannot be made up in any other way.

Late Assignments: Extensions on assignments will only be given in the case of major medical or personal emergencies. Each day past due will result in the deduction of 5% off the grade. Assignments more than five days late will not be accepted and the student will receive a grade of zero for that assignment.



## Archaeology 595 Winter 2010 Class Schedule

Week	Date	Topic	Reading Assignment
1	Jan 12	Introduction to Course	None
	Jan 14	History of Paleopathology; Definitions of Health and Disease; Method of Differential Diagnoses	Roberts -Manchester Ch. 1 McMichael preface (xi-xvi) and Ch. 1 p. 14-22 (health and ecology)
2	Jan 19	Bone Biology & Pseudopathology	Ortner and Turner-Walker (2003) – course-pack
	Jan 21	Paleodemography	McMichael Ch. 2 and Ch. 7 Bocquet-Appel and Masset (1982) – course-pack Van Gerven and Armelagos (1983) – course-pack
3	Jan 26	The Osteological Paradox	Wood et al. (1992) – course-pack Wright and Yoder (2003) – course-pack
	Jan 28	The Concept of Stress	Seyle (1936) – course-pack Goodman et al. (1998) – course-pack
4	Feb 2	Dental Disease I (Caries, Periodontal Disease, Abscesses, AMTL, Calculus)	Roberts-Manchester Ch. 4 p. 63-74 and 77-83 Cucina and Tiesler (2003) – link on blackboard
	Feb 4	Dental Disease II (Dental Enamel Defects)	Roberts and Manchester Ch. 4 p. 75-77 Reid and Dean (2006) – link on blackboard Cuhna et al. (2004) – link on blackboard <b>*Paleopathology Report Due *</b>
5	Feb 9	Developmental Disease (Microcephaly, Microcephaly, Cleft Palate, Hydrocephalus, Spina Bifida, Spondylolysis, Dislocations, Club Foot)	Roberts-Manchester Ch. 3 p. 44-59 <i>student assigned article</i>
	Feb 11	Genetic Dysplasias (Achondroplasia, Osteogenesis Imperfecta, Down's Syndrome, Osteopetrosis, etc.)	Roberts-Manchester Ch. 3 p. 59-62 Ortner (2003) Ch. 19 – pdf on blackboard <i>student assigned article</i>
<i>Reading Week</i>			<i>None</i>
6	Feb 23	Systemic Diseases II – Non-specific Infections (Osteomyelitis, Periostritis, Sinusitis)	Roberts-Manchester Ch. 7 p. 164-182 McMichael Ch. 3 Armelaos and McArdle (1977) – course-pack <i>student assigned article</i>
	Feb 25	Systemic Diseases III – Specific Infections (Gonorrhea, Leprosy, Syphilis, Arthritis)	Roberts-Manchester Ch. 7 p.182-206 Roberts-Manchester Ch. 6 p. 154 McMichael Ch. 4 Salo et al. (1994) – link on blackboard <i>student assigned article</i>
7	March 2	Systemic Diseases III – Specific Infections (Tuberculosis, Bacterial Infections, Histoplasmosis (pinta, Yaws, Chancroid, syphilis, Congenital syphilis), Histoplasmosis, Fungal, Mycotic Infections, Bacterial, Viral Infections, Smallpox, Rubella, HIV/AIDS Infections, Leishmaniasis, Sarcoidosis)	Roberts-Manchester Ch. 7 p. 206-220 Ortner (2003) Ch. 11 and 12 – pdfs on backboard <i>student assigned article</i>
	March 4	Craniology: Dephination and Perimortem Fracture	Roberts-Manchester Ch. 5 <i>student assigned article</i>
8	March 9	Joint Disease I (Acute and Chronic Osteoarthritis)	Roberts-Manchester Ch. 6 p. 136-154 <i>student assigned article</i>
	March 11	Joint Disease II (Rheumatoid Arthritis, Psoriatic Arthritis, Ankylosing spondylitis, DISH, etc.)	Roberts-Manchester Ch. 6 p. 155-163 <i>student assigned article</i>

9	March 16	9. Endocrine Diseases (Hypothyroid and Endocrine Disturbances)	Roberts-Manchester Ch. 8 p. 180-185 <i>student assigned article</i>
	March 18	10. Neoplasia (Cancer)	Roberts-Manchester Ch. 9 <i>student assigned article</i> <b>* Approval of Poster Topic Due *</b>
10	March 23	11. Nutrition Diseases (Vitamin Deficiency/Scorbuty/Rickets/ or Pernicious Anemia/Hereditary Lactase Deficiency/Phenylketonuria)	Roberts-Manchester Ch. 8 p.163-176 Steinbock 1978 – link on blackboard <i>student assigned article</i>
	March 25	12. Nutrition Diseases II (Starvation/Caloric Intake/Protein Deficiency/Osteoporosis)	Roberts-Manchester Ch. 8 p. 177-179 McMichael Ch. 5 Ortner (2003) Ch. 15 p. 405-415 – pdf on blackboard <i>student assigned article</i>
11	March 30	Stable Isotope Studies in Paleonutrition (Guest Lecture by Dr. M. Anne Katzenberg)	Katzenberg (2008) Ch. 13 – pdf on blackboard <i>additional reading to be announced</i>
	April 1	13. Stable Isotope and DNA Analysis Methods	Burton (2008) Ch. 14 – pdf on blackboard Lee-Thorp and Sponheimer (2006) – link on blackboard Webb et al. (2009) – link on blackboard
12	April 6 April 8	The Future of Paleopathology and Paleonutrition will be discussed in both this week's classes. [Note - there will be a heavy focus on discussion for these two classes.]	Roberts-Manchester Ch. 10 McMichael Ch. 11 and p. 345 (figure 12.1) of Ch. 12 Larsen (2002) – link on blackboard
13	April 13/15	<b>*STUDENT POSTER PRESENTATIONS*</b>	No readings this week

Weeks highlighted in yellow are instructor-led classes (or guest lecturers).

Weeks highlighted in green are student-led classes.

Note: ALL classes after week 1 will have a group discussion component during the last 30 minutes where all students should come prepared to discuss the readings and topic at hand.