

## EVOLUTIONARY ANTHROPOLOGY OF THE DENTITION

5 credits

Autumn, 2004

MW 1-3:18 PM



**Instructor:** Dr. Guatelli-Steinberg

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### **Course Overview:**

This is an advanced course focusing on the evolutionary anthropology of non-human primate and human dentition. The course employs a comparative approach to studying anthropologically significant aspects of the dentition, incorporating research from extant and extinct species of non-human primates and hominins. Topics selected for study represent areas of current research that address important questions in the study of human biological variation, human origins, and primate behavior and ecology. These topics include (but are not limited to): the evolution, genetics, and ontogeny of the dentition; functional aspects of tooth size and morphology; sexual dimorphism in tooth size and shape; dental asymmetry; dental morphology and the study of population affinities; dental development and life history theory; dental pathology/occlusal variation/chemical analysis and subsistence patterns; and enamel hypoplasias and histological markers of physiological stress.

### **Course Objectives:**

As an outcome of this course, students should gain a strong foundation in the central fields of current dental anthropological research. Through lab work, they should gain familiarity with the basic methodology of dental anthropologists, including methods of tooth measurement, morphology scoring, and microscopic analysis. Through their paper assignments, students should hone their abilities to analyze and critique studies in the context of larger research issues. Finally, students should be able to apply methods and/or approaches from the field of dental anthropology to their own research specializations.

### **Required reading:**

**Text: Available at the bookstore:**

Hillson S. 1996. Dental anthropology. Cambridge: Cambridge University Press.

**Course Packet: Anthropology 603.03: Readings**

### **Evaluation:**

Participation: 40 points

Paper Critiques: 3 papers, each worth 40 points = 120 points

Lab Assignments: 4 assignments, each worth 20 points = 80 points

Tooth Identification quiz: 40 Points

Final Exam: 120 points

Total points: 400

## Policies:

- *Attendance* is mandatory and is part of your participation score. To get the maximum points for *Participation* you must not only come to class but also be an active participant.
- As a courtesy to the instructor and fellow students, please be on time to lecture.
- *Labs*: There are no make-up labs. Be sure to attend them!
- *Grading*: There is no extra credit and grades are based on a standardized scale (93-100% = A; 90-92% = A-, 87-89% = B+, 83-86% = B, 80-82% = B-, etc.)
- *Late Assignments*: Assignments lose 10% of the point total for each day late.
- *Academic Misconduct*: The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. **Anyone caught cheating will be reported to the Board of Academic Misconduct.** When in doubt, consult with the course instructor. *Ignorance of the rules governing academic misconduct or ignorance of what constitutes academic misconduct is not an acceptable defense.*
- **STUDENTS WITH DISABILITIES ARE RESPONSIBLE FOR MAKING THEIR NEEDS KNOWN TO THE INSTRUCTOR AS SOON AS THE QUARTER BEGINS AND FOR SEEKING AVAILABLE ASSISTANCE FROM THE OFFICE OF DISABILITY SERVICES 292-3307, PRIOR TO OR AT THE BEGINNING OF THE QUARTER. I RELY ON THE OFFICE FOR DISABILITY SERVICES FOR ASSISTANCE IN VERIFYING THE NEED FOR ACCOMMODATIONS AND DEVELOPING ACCOMMODATION STRATEGIES.**

## Paper Instructions:

- There are 3 papers due throughout the term and each should be a **minimum of 3, maximum of 5** pages. Please type, 12 point, double spaced, 1 inch margins. References must follow AJPA format.
- 5 % of the total points of the paper will be **subtracted** for writing less than the page minimum or more than the page maximum.
- You must choose an article from the list distributed in class each session that papers are assigned (they are assigned two weeks in advance of the due date). No more than two students may choose the same article for each assignment. (Articles can be obtained from the library or in some cases through Oscar on line journals.)
- In your paper, you must summarize the article you have read, critique the article, and relate it to broader research issues discussed in the required reading as well as in class. In other words, you are evaluated on how well you explain the research, how insightfully you critique the research, and how well you can integrate the article you have read into the larger research question(s) or issue(s) to which it relates.

Week	Schedule of Events	Assignments Due	Required Reading
9/22	• <u>Lecture</u> : Scope of dental anthropology, dental anatomy, terminology		•Hillson (1998) Chs: 1, 2 •Ten Cate (1994) Ch: 1, 2
9/27	• <u>Lab 1, Part I</u> : Identifying permanent incisors and canines		•Ten Cate (1994) Ch: 3, 4 •Smith and Coates (2002) •Zhao and Weiss (2002)
9/29	• <u>Lecture</u> : Evolution and development of teeth and dental tissues		
10/4	• <u>Lab 1, Part II</u> : Identifying permanent premolars and molars		•Hillson (1998) pp. 68-85 •Kieser (1990) Chs 1, 2, 3, 5,
10/6	• <u>Lab 1, Part III</u> : Identifying deciduous teeth		
10/11	• <u>Quiz</u> : Tooth Identification quiz; • <u>Lecture</u> : Odontometry I: Techniques, trends, variability; <i>first paper assigned</i>	Lab 1 due Oct 11	•Kieser (1990) Chs 6, 7, 9, 10
10/13	• <u>Lecture</u> : Odontometry II: Allometry, Asymmetry, Sexual dimorphism		
10/18	• <u>Lab 2</u> : Odontometry	Lab 2 due Oct 20	•Hillson (1998) pp. 85-105 •Aiello and Dean (1990) Ch 8 •Butler (2002)
10/20	• <u>Lecture</u> : Dental Morphology I: Variation and functional morphology		
10/25	• <u>Discussion</u> : Paper 1; <i>second paper assigned</i>	Paper 1 due Oct 25	•Rose and Ungar (1998), pages 349-363 •Hillson (1998) pages 231-242 •Irish and Guatelli-Steinberg (2003)
10/27	• <u>Lecture</u> : Dental Morphology II: scoring dental morphology, population affinity studies; Macrowear		
11/1	• <u>Lab 3</u> : Dental morphology	Lab 3 due Nov 3	•Aiello and Dean (2002) Ch 7 •Hillson (1998) pages 148-164 <i>and</i> pages 178-181
11/3	• <u>Lecture</u> : Dental development and life history		
11/8	• <u>Discussion</u> : Paper 2; <i>third paper assigned</i>	Paper 2 due Nov 8	•Hillson (1998) pages 165-177 •Guatelli-Steinberg (2001) •Hillson (1998) Chapter 12
11/10	• <u>Lecture</u> : Dental pathology, enamel hypoplasia, and accentuated striae		
11/15	• <u>Lab 4</u> : Dental histology and enamel surfaces	Lab 4 due Nov 17	•Hillson Chs 5 and 9
11/17	• <u>Lecture</u> : Aging techniques		
11/22	• <u>Lecture</u> : Microwear and chemical analysis	Paper 3 due Nov 24	•Hillson (1998) pages 243-253 •Rose and Ungar (1998), pages 363-378) •Hillson, Chapter 10 •Grupe (1998)
11/24	• <u>Discussion</u> : Paper 3		
11/29	• <u>Lecture</u> : Occlusal Variation; <i>final assigned</i>	FINAL DUE: FINAL S WEEK	•Hillson, Chapter 4; 13
12/1	• <u>Discussion</u> : Future Research Prospects		