

Anthropological Sciences 173A:
The Evolution of Human Diet

Spring Quarter 2005

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Draft: 30 March 2005

Course Description

An examination of human dietary choices, and the consequences thereof, from ecological, epidemiological, and evolutionary perspectives. Topics include: foraging theory, human community ecology, evidence for evolutionary design in human physiological and motivational systems related to feeding and nutrition, epidemiology of nutritional disorders, subsistence economies and modes of production, reduction diets, health diets.

A goal of the class will be to provide students with tools that can be used in future research endeavors. Specific tools that we will encounter include: allometric and dimensional analysis, specification and solution of simple optimization problems, calculating measures of diversity and evenness, spectral analysis of time series, formulation and analysis of simple graphical models.

Readings

There are no textbooks for this course. Most readings will be from the primary literature, with occasional review papers for background material. All readings will be posted on the course web page in portable document format (.pdf). The access-restricted directory in which readings can be found is:

<https://www.stanford.edu/class/anthscil73a/restricted/readings/>

Expectations

This course is designed for upper-division students and graduate students interested in human ecology, evolution, and behavior. The form of the class will be interactive lectures. We will be reading work from the primary scientific literature and trying to develop some facility with the theoretical underpinnings of evolutionary and behavioral ecology as it is applied to human systems. While the readings are intellectually demanding, I have kept the weekly load light with the expectation that all students will come to class having read the week's readings carefully and critically. I will circulate study questions to accompany the readings on a weekly basis and these questions will form the basis of the interactive segment of class. Attendance in class is mandatory.

I expect students to write summaries of the week's readings for **three** weeks. At least one of these summaries must be completed before 27 April. Summaries

should not exceed two pages and should discuss the point of each paper, the methods employed, the assumptions underlying any models or methods used, and its relationship to the subject matter of the course.

This is a five-credit class. There is no three-credit option. I expect all students to write a fifteen-page research paper, worth 50% of the grade, on a topic of their choice. Each student should prepare a prospectus describing their plan for a research paper. This prospectus will count for 10% of the final class grade.

Grading

25% Class Participation
15% Reading Summaries
10% Paper Prospectus
50% Research Paper

Syllabus

Class meets on Mondays and Wednesdays from 1:15-3:05 in Building 360, room 361J.

28 March **Styles of Evolutionary Thought**

Readings: Smith et al. (2001); Pigliucci & Kaplan (2000)

4 April **Structure and Function of the Human Digestive System**

Readings: (Chivers & Langer 1994; Chivers & Hladik 1980)

11 April **Food Webs and Community Ecology**

Readings: Pimm & Lawton (1978); McCann et al. (1998)

18 April **Foraging Theory**

Readings: Charnov (1976); Kaplan & Hill (1992); Dall & Boyd (2004)

25 April **Variation in Time and Space**

Readings: Cashadan (1992); Mace (1993)

2 May **Life History Theory**

Readings: Gadgil & Bossert (1970); Schaffer (1974)

9 May **Activity Budgets and the Economics of Locomotion**

Readings: Taylor et al. (1982); Bramble & Lieberman (2004); Levine et al. (2005)

16 May **Work**

Readings: Sahlins (1968); Winterhalder (1993)

23 May **Decisions About What and Where to Eat**

Readings: Metcalfe & Barlow (1992); Bird & Bird (2005)

30 May **What Are Humans "Adapted to Eat"?**

Readings: Eaton et al. (1997); Cordain et al. (1998)

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- Metcalfe, D., and K. R. Barlow. 1992. A model for exploring the optimal trade-off between field processing and transport. *American Anthropologist* 94 (2):340-356.
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