Instructors:

William H. Durham
Department of Anthropological Sciences
Office: Building 360, Room 362L
phone: 3-0867
e-mail: eb.whd@stanford.edu
Office Hours: Friday, 1:15-3:15 or Thursday 3-5 by appointment

James Holland Jones
Department of Anthropological Sciences
Office: Building 360, Room 361I
phone: 3-4824
e-mail: jhj1@stanford.edu
Office Hours: Friday 11-12 & 1:15-3:15, or by appointment

Teaching Assistant:

Kylea Liese
Department of Anthropological Sciences
Office: Building 360
e-mail: ky.liese@stanford.edu
Office Hours: Thursday 1-3

Course Description:

This is a lecture course on the changing epidemiological environment, with particular attention to the ways in which human-induced environmental changes are altering the ecology of infectious disease transmission, thereby promoting their re-emergence as a major global public health threat. Organized by case studies of environmental change at local to global scales, we focus on the role that environmental changes (such as deforestation and land-use conversion, urbanization, human migration, international commerce, and global warming) play in contemporary disease transmission. The diseases affected by these environmental changes include SARS, malaria, HIV, Chagas disease, Lyme, influenza, cholera, hantavirus, and plague.
Expectations:

Attendance at lecture and discussion sections is mandatory. There is an in-class midterm and final, for the 3-unit option, and the same midterm plus a 15-page research paper for the 5 unit option. The research paper may be on any related topic that is approved by the instructors. Paper proposals will be due during week 5 of the course (details TBA). Collaborative papers are encouraged, subject to the requirement of roughly 15 pages per author.

Prerequisites:

HUMBIO 2A, 2B or permission of the instructors.

Grading:

Grades for 5-unit enrollment will be based on midterm (33%) and the 15-page paper (67%). Grades for 3-unit enrollment will be based on midterm (33%) and final (67%).

Sections:

Recitation sections will meet for one hour weekly. Two sections are currently scheduled on Thursday afternoons at 4:00 and 5:00. Location TBA.

Readings:

There are four required texts for this class. We will supplement these books with readings from the primary scientific literature throughout the quarter. All papers will be available on coursework.


Course Outline: 5 February 2005 (v. 1.1)

Lectures are on Tuesday and Thursday from 11-12:30 in Building 420, room 040.

Week 1. Introduction

01.04  SARS: A Taste of the Future? (Jones)

01.06  Epidemiology Meets Ecology: Some Tools (Jones)
       Readings: Aron & Patz, Chs. 2 and 10

Week 2. Local Deforestation and Disease: Frontier Malaria in Rondônia

01.11  Colonization in Rondônia (Durham)

01.11  Deforestation and Disease (Durham)
       Readings: Aron & Patz, Ch 12, “Malaria and Global Ecosystem Change”

Week 3. Ecological Mysteries: HIV & Ebola in Central Africa

01.18  HIV and Bushmeat (Jones)
       Readings: Hahn et al. (2000); Gao et al. (1999); Wolfe et al. (2004);
               Garrett, ch. 11

01.20  Ebola: Quest for the Filovirus Reservoir (Jones)
       Readings: Peterson et al. (2004a; 2004b); Garrett, ch. 7

Week 4. Regional Changes and Chagas Disease: Who’s the Guinea Pig?

01.25  Ecological Transformation and Domiciliation (Durham)
       Readings: Bastien, The Kiss of Death (Intro plus 1-157)

01.25  When is Chagas Endemic and When Enzootic? (Durham)
       Readings: Coimbra 1988, 82-91

Week 5. Changes in the Land: Tick Community Ecology in New England Oak Forest

02.01  Lyme Disease and Deflected Succession (Jones)
       Paper Topic Proposals Due (5-unit option only)
       Readings: van Buskirk & Ostfeld (1998); LoGiudice et al. (2003)

02.03  Lyme Disease, Mast Fruiting, and ENSO (Jones)
       Readings: Jones et al. (1998); Randolph (2001)
Week 6. National & International Change: The Case of Spanish Influenza

02.08 MIDTERM EXAM

02.10 From World War to World Influenza (Guest Lecture: Ron Barrett)
Readings: Crosby, America's Forgotten Pandemic

Week 7. Global Environmental Change: Climate and Cholera

02.15 Environment and Endemism in South Asia: The Case of Cholera (Guest Lecture: Gary K. Schoolnik)
Readings: Aron & Patz, Ch 11, “Cholera and Global Ecosystems”; Garrett, ch. 16

02.17 El Niño and its Copepods: The Peruvian Cholera Epidemic (Durham)

Week 8. Indirect Effects and Disease Amplification: Hantavirus Pulmonary Syndrome

02.22 Environmental change, Culture, and Kuru: Prions and BSE (Durham)
Readings: Spencer 2004; Goldfarb 2002; Mead 2003

02.24 Death in the Southwest: Hantavirus Pulmonary Syndrome (Jones)
Readings: Engelthaler et al. (1999); Hjelle & Glass (2000); Garrett, ch. 15

Week 9. Wrap-Up: Humanity’s Changing Epidemiological Environments

03.01 Of Pigs, Ducks, and Lots and Lots of People... (Jones)
Readings: Earn et al. (2002); Gog & Grenfell (2002); Garrett, ch. 6

03.03 Concluding Remarks (Durham, Jones)
Readings: Galvani (2002); Daily & Ehrlich (1996)

Finals Week

03.14 Final Exam and Paper Due
Readings:


