

ANT 311: Population Health and Human Origins

Fall 2011

Tuesdays & Thursdays, 12:30 – 1:45pm, 22 ten Hour

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Office hours: Tuesdays and Thursdays 8:30 – 9:30am

Prerequisites:

ANT 100 or 270, or permission of the instructor

Course Description

Focuses on the relationships among human ecology, population change, health and disease, social inequity, and adaptation in modern and prehistoric societies. Explores the origins of and pathways toward risk for infectious and chronic diseases, emphasizing the principles of epidemiology and the evolutionary history of both humans and pathogens.

Objectives

Course Objectives and Student Learning Outcomes:

At the end of this course students should be able to:

- Explain how our evolutionary history intersects with social and cultural change to produce major new health challenges, even though we seem to have made miraculous strides in medicine and public health.
- Describe how and why health is distributed unevenly within and across populations, depending on social and economic position, and how this relates to population and species-level evolutionary histories.
- Integrate proximate and ultimate models of causality to explain why some people end up sick and others do not.
- Explain the relevance of stress to human health.
- Work with others to devise well-informed plans of action to address modern health challenges, taking into account what you have learned about evolutionary medicine and population health.

Outline of Topics Covered During the Semester

Week 1: Introduction to Concepts: Evolutionary Basics Reviewed

8/25 Discuss syllabus; Evolution by Natural Selection

Read: Relethford (2008) Chapters 1-3

[note: this is review material; if you have taken ANT 270 and understand the basics of evolutionary theory, consider this an optional reading for reference]

- Week 2: Introduction to Concepts: Evolution and Evolutionary Medicine
 8/30 Evolution by Natural Selection, cont.
 9/1 What is evolutionary medicine?
Read: Evolutionary Medicine Chapter 1
- Week 3: Introduction to Concepts: Evolutionary Medicine, Complex Causality
 9/6 Introduction to evolutionary medicine, cont.
 9/8 Understanding Causality in Diseases of Complex Etiology
- Week 4: Macro-level Behavioral Changes and Population Health
 9/13 Changing Disease Patterns: Epidemiological Transitions
Read: Armelagos et al. 2005
 9/15 Evolution and nutrition
Read: Evolutionary Medicine Chapter 2 (Turner et al.)
- Week 5: Evolution and “Diabetesity”
 9/20 Diabetesity in evolutionary perspective
Read: Evolutionary Medicine Chapter 3 (Lieberman)
 9/22 Obesity and body composition from an evolutionary perspective
Read: Evolutionary Medicine Chapter 17 (Baker et al.)
- Week 6: Early Life Influences on Later Health
 9/27 Developmental and intergenerational considerations in diabetesity
Read: Evolutionary Medicine Chapter 18 (Kuzawa)
 9/29 Infant feeding and sleeping practices
Read: Evolutionary Medicine Chapter 12 (Ball and Klingaman)
- Week 7: Reproductive Ecology
 10/4 Stress and reproductive development
Read: Evolutionary Medicine Chapter 6 (Chisholm and Coall)
 10/6 Menstruation and its suppression
Read: Evolutionary Medicine Chapter 9 (Leidy Sievert)
- Week 8: Ecology of Sleep, Ecology of Infectious Disease
 10/11 Evolutionary ecology of sleep
Read: Evolutionary Medicine Chapter 16 (Worthman)
 10/13 Ecological Change and Health: Sleeping Sickness
Read: Desowitz 1998
- Week 9: Midterm / Why Zebras Don’t Get Ulcers I
 10/18 **MIDTERM EXAM**
(EVOLUTIONARY MEDICINE: CONCEPTS AND CASE STUDIES)
 10/20 Introduction to Stress Biology & Health
Read: Sapolsky Ch 1, 2
- Week 9: Why Zebras Don’t Get Ulcers II
 10/25 Strokes, Voodoo Death, Metabolism
Read: Sapolsky Ch 3, 4
 10/27 FALL BREAK

Week 12: Why Zebras Don't Get Ulcers III
11/1 Ulcers, the Runs, and Hot Fudge Sundaes
Read: Sapolsky Ch 5
11/3 Dwarfism, Moms, Sex and Reproduction
Read: Sapolsky Ch 6, 7

Week 14: Why Zebras Don't Get Ulcers IV
11/8 Immunity, Stress and Disease
Read: Sapolsky Ch 8
11/10 Stress and Pain
Read: Sapolsky Ch 9

Week 13: Why Zebras Don't Get Ulcers V
11/15 Stress and Memory
Read: Sapolsky Ch 10
11/17 Sleep, Aging and Death
Read: Sapolsky Ch 11, 12

Week 14: Why Zebras Don't Get Ulcers VI
11/22 Psychological Stress, Depression
Read: Sapolsky Ch 13, 14
11/24 THANKSGIVING HOLIDAY

Week 15: Why Zebras Don't Get Ulcers VII
11/29 Personality, Temperament, and their Stress-Related Consequences
Read: Sapolsky Ch 15
12/1 Junkies, Adrenaline Junkies, and Pleasure
Read: Sapolsky Ch 16

Week 16: Why Zebras Don't Get Ulcers VIII
12/6 The View from the Bottom
Read: Sapolsky Ch 17
12/8 Managing Stress
Read: Sapolsky Ch 18

FINAL EXAM: Tuesday, December 13, 11:30am
(WHY ZEBRAS DON'T GET ULCERS: STRESS, EVOLUTION, AND HEALTH)

Attendance Policy

Class Attendance and Participation: This is a discussion-oriented class and attendance is required. Unexcused absences will lower your final grade. Classroom participation is an important requirement of the course and it will figure in the final grade. We will be using TurningPoint "clickers" as one element of in-class participation. Failure to respond to a "clicker" prompt will automatically result in zero participation credit for that day.

You also will be required to participate in online discussions through eLearning, which will figure into your course grade. I will post a discussion question each Monday. Before the following Monday, you need to post a response which will be

visible to the other students. You will receive full credit (10 points out of 10), partial credit (8 or 5 points), or no credit (0 points) for each week based on the measure of thought and effort you put into your responses. It is fine (and you can receive full credit) if you wish to express disagreement with the readings or with me – so long as you have put careful thought and effort into your response.

Number & Timing of Major Examinations & Assignments

There will be one midterm exam on October 18, and one final exam on December 13 (as scheduled by the university). Each covers topics from the readings, class discussions, exercises, and presentations. The final exam is not cumulative.

Grading Policy

Midterm Exam	35%
Final Exam	35%
In-Class Participation	20%
Online Participation	10%

Policy for Making-Up Missed Course Work (including examinations)

Make-up policy: No make-up tests will be allowed for the midterm or final exam without a very good excuse. Arrangements must be made in advance, except in the case of a very serious last-minute emergency. In case of illness, a doctor's note making it clear that you *could not* have attended must be presented. Midterm make-up exams must be taken within one week of the midterm. Final exam make-ups are taken on the official deferred examination date set by the university.

Required Texts and Other Course Material

Most of the readings come from two required texts:

- 1) Travathan WR, Smith EO, and McKenna JJ, eds. (2008) Evolutionary Medicine and Health: New Perspectives. Oxford University Press.
- 2) Sapolsky, R (2004) Why Zebras Don't Get Ulcers, Third Edition. Holt Paperbacks.

If you purchase your book from a source other than the UA Supply Store, please make sure you get the correct edition. There are earlier editions of both books on the used market, and the changes are *very substantial*.

Reading assignments listed in the outline that are not from the two required texts are detailed in the bibliography at the end of the syllabus. These will be available for download on eLearning.

You also are required to have a TurningPoint (Turning Technologies) ResponseCard XR (a “clicker”), which is available at the bookstore. These are remote radio transmitters that interface with a receiver located in the podium at the front of class. If you purchase your clicker online or from another student, make sure you buy the XR model. Used XR clickers will work fine, and you can use the same clicker for multiple classes. I’ll use the clicker system as one element of in-class participation.

The course has an eLearning site that you can access through mybama under the “Academics” tag, or by going directly to <http://elearning.ua.edu>. The eLearning site will feature links to course-related content including PDFs of PowerPoint presentations, a tool where you can check your grades, announcements, and the discussion forum for weekly online participation. You will need to visit eLearning at the beginning of the semester to register your clicker (there is a link for this on the front page of the eLearning site for this course). Let Dr. DeCaro know if you have any difficulty accessing eLearning at the start of the course.

Academic Dishonesty Policy

All acts of dishonesty in any work constitute academic misconduct. This includes, but is not limited to, cheating, plagiarism, fabrication of information, misrepresentations, and abetting of any of the above. The Academic Misconduct Disciplinary Policy will be followed in the event that academic misconduct occurs. Students should refer to the Student Affairs Handbook, which can be obtained in the Office of Student Life and Services in the Ferguson Center

Disability Policy

If you are registered with the Office of Disability Services, please make an appointment with me as soon as possible to discuss any course accommodations that may be necessary. If you have a disability but have not contacted the Office of Disability Services, please call 354-5175 or visit Osband Hall to register for services.

Bibliography of Required Readings (other than from the texts)

- Armelagos GJ, Brown PJ, and Turner B (2005) Evolutionary, historical and political economic perspectives on health and disease. *Social Science and Medicine* 61:755-65.
- Desowitz RS (1998) The fly that would be king. In PJ Brown (ed.): *Understanding and Applying Medical Anthropology*. Mayfield Publishing Company: Mountain View, CA, pp. 92-98.
- Relethford J (2008) *The Human Species: An Introduction to Biological Anthropology*, 7th Edition. McGraw Hill. [Chapters 1-3 only]