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ANTI 553
EVOLUTIONARY ARCHAEOLOGY

ANTI 553, Evolutionary Archaeology is a graduate seminar designed to expose students to the fast-growing world of Darwinian evolutionary archaeology. The seminar will have two specific goals. First, students will gain a basic understanding of the major trends in current archaeological evolutionary thinking with a focus on cultural transmission theory, human behavioral ecology, and macroevolutionary approaches to archaeology. Second, students will gain experience in applying the tenets of Darwinian evolutionary theory to the development and analysis of archaeological data. Students will emerge from the course with enhanced abilities to link theoretical problems to strategies for collection and analysis of archaeological data within an evolutionary framework.

Professor: Dr. Anna M. Prentiss; Office: Social Sciences 205; Message Telephone (Anthropology Department) 243-2693; email: anna.prentiss@umontana.edu; Office hours: Monday, Wednesday, Friday, 9-11, or by appointment.

Text/Readings:

Broughton, Jack and Michael D. Cannon

Jordan, Peter

Mesoudi, Alex

Richerson, Peter J. and Robert Boyd

Learning Outcomes:

1. Knowledge of fundamental concepts and debates in evolutionary archaeology
2. Ability to develop and complete a research project in evolutionary archaeology.
3. Expansion of skills in data collection and analysis within an evolutionary framework.
4. Improvement in writing and speaking skills.
Grade Determination:

Seminar assignments are designed to develop student skills in reading and understanding the literature in Darwinian archaeology and designing and implementing research projects within this framework. Assignments are as follows:

1. Each student will develop a 5-10 page research plan or design for their seminar project (see below). This will include a discussion of the research problem, hypotheses to be tested and proposed methods. This paper also provides you a chance to review and cite the literature relevant to your research problem. The paper should be approximately five to ten pages in length and written using American Antiquity style. Due date for the paper: October 22. It is worth 100 points.

2. Each student is required to write a 20 page research paper (again using American Antiquity style). The research paper will present results of a study that will include an explicit analysis of archaeological data developed in an evolutionary framework (cultural transmission theory, cultural macroevolution, human behavioral ecology, etc.). The paper will include an introduction to the problem, a discussion of theoretical background and previous research, methods, analysis, and final discussion. The goal is to stimulate each student to explore in depth one evolutionary model by developing it as a research tool for a context of your choice. The research paper is due December 14. It is worth 250 points.

Assignments must be well written with minimal grammatical problems, spelling issues, etc. If you have writing problems you should seriously consider visiting the university writing center for extra help. Assignments must demonstrate an attempt by you to obtain and cite the critical anthropological literature associated with your research topic. Assignments with minimal citation of the literature will be scored low (that is also what will happen to you in the "real world").

3. All students will participate in seminar activities. Participation will include presentation of readings and research results. Participation is worth 50 points.

Grades will be determined on the basis of total points achieved:

Assignments (see below) 350 Points
Seminar Participation 50 Points
Total 400 Points

Students with 90% (360 points) or more will receive an "A," etc. Deadlines are extended only in cases of illness (with a doctor's note) or an emergency. The professor retains the option to use + and – grades when final scores are close (within a point on a 0-100 scale) to an up or down transition.
Reading List and Schedule

AUGUST 27
INTRODUCTION AND BACKGROUND

Reading:
Mesoudi, Chapters 1, 2, and 10

SEPTEMBER 3
HOLIDAY

SEPTEMBER 10
CULTURAL MICROEVOLUTION: MODELING CULTURE AS AN INHERITANCE SYSTEM

Reading:
Richerson and Boyd, All chapters
Mesoudi, Chapters 3 and 6

SEPTEMBER 17
CULTURAL TRANSMISSION AND PHYLOGENETIC ANALYSIS: A CASE STUDY

Reading:
Jordan, All Chapters

SEPTEMBER 24
MICROECONOMICS, EVOLUTION, AND HUMAN BEHAVIOR: INTRODUCTION TO HUMAN BEHAVIORAL ECOLOGY; PLIO-PLEISTOCENE ADAPTATIONS; POST-GLACIAL ADAPTATIONS

Reading:
Broughton and Cannon, Chapters 1-15

OCTOBER 1
ARCHAEOLOGICAL CASE STUDIES IN HUMAN BEHAVIORAL ECOLOGY: TECHNOLOGICAL ORGANIZATION, FOOD PRODUCTION STRATEGIES; COOPERATION AND COMPETITION

Reading:
Broughton and Cannon, Chapters 15-25
Mesoudi, Chapter 4

Prentiss, Anna Marie

Prentiss, Anna Marie, Randall R. Skelton, Niles Eldredge, and Colin P. Quinn

Prentiss, Anna Marie, Matthew J. Walsh, Randall R. Skelton, and Matt Mattes

Tehrani, Jamshid

Goodale, Nathan, George T. Jones, and Charlotte Beck

Mesoudi, A., and M.J. O’Brien

Mesoudi, A., and M.J. O’Brien

O’Brien, Michael J., Matthew T. Boulanger, Briggs Buchanan, Mark Collard, R. Lee Lyman, John Darwent

Lycett, Stephen

OCTOBER 15
CULTURAL MACROEVOLUTION: COMPLEX CULTURAL UNITS

Reading:

Mesoudi, Chapters 4 and 5

**Evolution of Socio-Economic Strategies**

Prentiss, Anna Marie, Ian Kuijt, and James C. Chatters

Prentiss, Anna Marie, James C. Chatters, Matthew J. Walsh, and Randall R. Skelton

Prentiss, Anna Marie, Matthew J. Walsh, Thomas A. Foor, and Kristen D. Barnett

Barton, Loukas, P. Jeffrey Brantingham, and Duxue Ji

Coward, Fiona, Stephen Shennan, Sue Colledge, James Conolly, and Mark Collard

Foley, R.A. and M.M. Lahr

**Evolution of Folktales**
Tehrani, Jamshid J.  

Ross, Robert M. and Quentin D. Atkinson  

**OCTOBER 22**  
**FIRST ASSIGNMENT PRESENTATIONS AND DISCUSSIONS**

**OCTOBER 29**  
**COOPERATION THEORY AND CULTURAL EVOLUTION**

**Cooperation in Theory**

Hardin, Garrett  

Axelrod, Robert and W.D. Hamilton  


Carballo, David M., Paul Roscoe, and Gary M. Feinman  

Boyd, Robert and Peter J. Richerson  

Matthew, Sarah and Robert Boyd  

**Cooperation in the Archaeological Record (Some Diverse Perspectives)**

Eerkens, Jelmer W.  
Hayden, Brian  

Munro, Natalie D. and Leore Grosman  
2010  Early Evidence (ca. 12,000 B.P.) for Feasting at a Burial Cave in Israel. *Proceedings of the National Academy of Sciences* 107(35):15362-15366.

Spencer, Charles S. and Elsa M. Redmond  

**NOVEMBER 5**

**SIGNALLING THEORY AND CULTURAL EVOLUTION**

**Reading:**

Hawkes, Kristen  

Wiessner, Polly  

Bird, R.B. and E.A. Smith  

McGuir, K.R. and W.R. Hildebrandt  

Bowles, Samuel  

Boone, James L.  

Henrich, Joseph and Francisco J. Gil-White  
2001  The Evolution of Prestige Freely Conferred Deference as a Mechanism for Enhancing the Benefits of Cultural Transmission. *Evolution and Human*
Roscoe, Paul

Borgerhoff Mulder, Monique et al. (25 co-authors)

Prentiss, Anna Marie, Thomas A. Foor, Guy Cross, Lucille E. Harris, and Michael Wanzenried

**NOVEMBER 12**

**DEMOGRAPHIC THEORY AND CULTURAL EVOLUTION**

**Demography and Cultural Variation**

Steele, James and Stephen Shennan

Shennan, Stephen

Henrich, J.

Richerson, Peter J., Robert Boyd, and Robert L. Bettinger

Shennan, Stephen

Collard, Mark, Krist Vaesen, Richard Cosgrove, and Wil Roebroeks

**Demography, Storage, and Social Change**

Puleston, C., S. Tuljapurkar, B. Winterhalder


Winterhalder, Bruce, Cedric Puleston, and Cody Ross


Prentiss, Anna Marie, Hannah S. Cail, and Lisa M. Smith


Prentiss, Anna Marie, Thomas A. Foor, Ashley Hampton, Ethan Ryan, and Matthew J. Walsh


**NOVEMBER 19**

**CULTURE AND THE EXTENDED EVOLUTIONARY SYNTHESIS**

**The Extended Synthesis in Evolutionary Biology, Anthropology, and Psychology**


Fuentes, Augustin


Whiten, Andrew


**The Extended Synthesis and Archaeology**

Zeder, Melinda A.
Zeder, Melinda A.

2016  Domestication as a Model System for Niche Construction Theory.  
      *Evolutionary Ecology* 30:325-348.

NOVEMBER 26
STUDENT RESEARCH PRESENTIONS

DECEMBER 3
STUDENT RESEARCH PRESENTIONS

DECEMBER 10
STUDENT RESEARCH PRESENTATIONS

DECEMBER 14
RESEARCH PAPERS DUE (5:00 PM)
Key Terms to research:

adaptation
analogous
homologous
class
clade
culture
cultural virus
cultural trait
descent
drift
Darwinian population
essentialism
evolutionary individual
extrasomatic
exaptation
ecological hierarchy
genealogical hierarchy
genotype
fitness, inclusive fitness
individualism
interactor
meme
model
neutral and nearly neutral models
pathway
phenotype
reductionism
selection (natural, artificial, cultural, stabilizing, group)
“selfish” gene, meme
species
stasis
structural design (Bauplan)
trend (driven, passive)
transmission