ANTY 553
EVOLUTIONARY ARCHAEOLOGY

ANTY 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: I will not be holding open-door office hours due to risks associated with the pandemic. Please feel free to email me for an appointment (I am open to telephone, Zoom, or outdoors in-person meetings).

PANDEMIC INFORMATION

- This course will be taught on a Remote basis via Zoom. Thus, there will be no in-person face-to-face issues.
- If you are sick or displaying symptoms, please contact the Curry Health Center at (406) 243-4330
- Up-to-Date COVID-19 Information from the University of Montana:
  - UM Coronavirus Website: https://www.umt.edu/coronavirus
- Remain vigilant in mitigating the spread of COVID-19

Text/Readings:

Broughton, Jack and Michael D. Cannon

Perreault, Charles

Prentiss, Anna Marie (editor)
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 evolutionary 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 13. It is worth 100 points.

2. Each student is required to write a 15-20 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 November 24. 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 based on 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 25
INTRODUCTION AND BACKGROUND

Reading:
Prentiss, Chapter 1

SEPTEMBER 1
CULTURAL MICROEVOLUTION: MODELING CULTURE AS AN INHERITANCE SYSTEM

Reading:
Prentiss, Chapters 2-3
Richerson and Boyd, All chapters

SEPTEMBER 7
HOLIDAY

SEPTEMBER 8
CULTURAL MACROEVOLUTION: INTRODUCTION AND ARTIFACT CENTERED MACROEVOLUTION

Reading:
Prentiss, Chapters 4-8
Prentiss, Anna Marie, Matthew J. Walsh, Randall R. Skelton, and Matt Mattes 2016 Mosaic Evolution in Cultural Frameworks: Skateboard Decks and Projectile Points. In Cultural Phylogenetics: Concepts and Applications in

Tehrani, Jamshid

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

SEPTEMBER 15
CULTURAL MACROEVOLUTION: COMPLEX CULTURAL UNITS

Reading:
Prentiss, Chapters 9-10

Evolution of Socio-Economic Strategies
Prentiss, Anna Marie, Matthew J. Walsh, Thomas A. Foor, and Kristen D. Barnett

Barton, Loukas, P. Jeffrey Brantingham, and Duxue Ji
2007 Late Pleistocene Climate Change and Paleolithic Cultural Evolution in Northern China: Implications from the Last Glacial Maximum. Developments in the Quaternary Sciences 9:105-128.

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

The Extended Synthesis and Archaeology
Zeder, Melinda A.
2017 Domestication as a Model System for the Extended Evolutionary Synthesis. Interface Focus 7:20160133.

Zeder, Melinda A.

**Evolution of Folktales**


**SEPTEMBER 22**
**CHALLENGES OF THE ARCHAEOLOGICAL RECORD**

*Reading:*

Perreault, All Chapters

**SEPTEMBER 29**
**MICROECONOMICS, EVOLUTION, AND HUMAN BEHAVIOR: INTRODUCTION TO HUMAN BEHAVIORAL ECOLOGY; PLIO-PLEISTOCENE ADAPTATIONS; POST-GLACIAL ADAPTATIONS**

*Reading:*

Prentiss, Chapters 11-13
Broughton and Cannon, Chapters 3, 4, 7, 9, 12, 14

**OCTOBER 6**
**ARCHAEOLOGICAL CASE STUDIES IN HUMAN BEHAVIORAL ECOLOGY: TECHNOLOGICAL ORGANIZATION, FOOD PRODUCTION STRATEGIES; COOPERATION AND COMPETITION**

*Reading:*

Prentiss, Chapter 15
Broughton and Cannon, Chapters 16-23

**OCTOBER 13**
**FIRST ASSIGNMENT PRESENTATIONS AND DISCUSSIONS**
**FIRST ASSIGNMENT DUE 5:00 PM**
COOPERATION THEORY AND CULTURAL EVOLUTION

Cooperation in Theory

Hardin, Garrett

Axelrod, Robert and W.D. Hamilton

Henrich, Joseph, R. Boyd, J. Ensminger, R. McElreath, A. Barr, C. Barrett
Bolyanatz, J.C. Cardenas et al.

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.

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
OCTOBER 27
SIGNALING THEORY AND CULTURAL EVOLUTION

Reading:

Prentiss, Chapter 14

Hawkes, Kristen

Wiessner, Polly

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

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

Bowles, Samuel

Boone, James L.

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

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

NOVEMBER 3
ELECTION DAY HOLIDAY
NOVEMBER 10
DEMOGRAPHIC THEORY AND CULTURAL EVOLUTION

Demography and Cultural Variation

Steele, James and Stephen Shennan

Shennan, Stephen

Henrich, J.

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

Demography, Storage, and Social Change

Prentiss, Chapter 16

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, Matthew J. Walsh, Thomas A. Foor, Kathryn Bobolinski, Ashley Hampton, Ethan Ryan, and Haley O’Brien
and page numbers forthcoming).

NOVEMBER 17 AND 24
STUDENT RESEARCH PRESENTATIONS
RESEARCH PAPERS DUE NOVEMBER 24 (5:00 PM)

Key Terms to research:

adaptation
analogous
homologous
classification
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