Advanced Topics in Human Ecology
Ecology 210

Course Outline
Spring 2006

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Lectures MWF 10-11 (ESP/ANT 105) 102 Hutchinson, Seminar F 11-12 2120J Wickson

I. Objectives of the course

"Human Ecology" is a term that implies a comprehensive science of the human species based upon the same basic principles that apply to other species. Within that broad concept, uses of the term are diverse. The basic objective of this course is to explore the envelope of subject matter that is or should be included in Human Ecology. In this particular version of the course, the emphasis will be on the processes of cultural evolution and on gene-culture coevolution. The overarching issues in the course are the degree to which humans are a special case among the huge diversity of non-human species, exactly what sort of special case we are, and what does the application of ideas from evolutionary biology imply for the future of the social sciences. If the fragmentation of the social sciences and their lack of systematic grounding in the general principles of ecology and evolution are real problems, then human ecology should be an engine for generating a compelling research agenda. The conventional disciplines should have left us lots of interesting empty niches, even if their accomplishments are otherwise impressive, which they are.

II. Organization of the Course

The lecture portion of the course is coordinated with Professors McElreath and Richerson's undergraduate course, The Evolution of Societies and Cultures, ESP/ANT 105. In that course, we will read two texts:

(1) Johnson & Earle, *The Evolution of Human Societies: From Foraging Group to Agrarian State* (2nd Edition)

(2) Richerson & Boyd, *Not by Genes Alone: How Culture Transformed Human Evolution*

They are for sale in the bookstore.

III. Course Exercises

A. *Paper*. Write a paper addressing a basic topic in cultural evolution. The paper may be in the form of a review paper or a grant proposal, but the topic should be suitably ambitious. For example, if you choose to do a grant proposal, think in terms of a "big science" budget, not in just in terms of the usual PhD project. Or suppose you are writing a proposal for a career development award requiring you to outline a decade's worth of research. We will grade the paper for form and give you feedback on style that should be useful when you write proposals and literature reviews in the future, but mainly We'll be looking for innovative and insightful analysis of a significant question. Think big! Soon you will have to narrow your focus to develop a doable thesis, but such narrowing will result in a better thesis if it plays before a backdrop of larger issues. Please give me a written outline of your paper by May 1. 50% of your grade.

B. *Talk.* Give an introductory talk to launch the discussion in one of the weekly seminars. One of the most frequent tasks you'll have in your career is to give short talks. Those at professional meetings are form of scientific communication, second only in importance to the refereed paper. Take absolutely no more than15 minutes to give your take on the most important issues surrounding the topic of discussion your week. Take as provocative and innovative a slant on your week's question as you can. We will again grade this exercise partly for style. You need to learn to outline talks, prepare visual aids, and rehearse to get your timing down. Partly, we'll grade on substance. You should be prepared to do sufficient outside reading to be prepared to bring a considerably fresher and deeper perspective on the topic than you could glean just from the lectures. Richard or I can always give you some pointers on where to start. Give the rest of us one piece of background reading for your topic. Your preparation for the talk may or may not overlap with your paper. I will try to grade the two in conjunction so that you will not be penalized if they are completely different. 20% of your grade.

C. *Exam*. Just to make sure that you master the material in the lecture part of the course you will take the ESP/ANT 101 final exam. If we didn't think the material is important, we wouldn't sweat bullets over our lectures! 20% of your grade.

D. *Participation*. To keep the other 35 minutes of the seminar interesting we'll need lively, prepared participants. 10% of your grade.

IV. Seminar Topics

The following are not carved in stone. If some of you have ideas that are related to cultural evolution but are not on the list, or if you want to put a somewhat different slant related to one of these topics, speak up. There are 8 of you and 9 Fridays to work with. I can do them all without too much preparation, so I'll lead the one that is left over. I will be out-of-town on some occasions when Richard will take the session. Let me know what topic/week you've selected. I'll assign dates in the order that they are requested.

I encourage you to be critical of the ideas and data in *Not By Genes Alone*. It is harder to be critical with the author in the room, but my skin is thick and it is important to develop your personal style of public scientific argumentation. Many really nice and even really shy people develop effective styles for dealing creatively with disagreements.

April 7. **Is cultural evolution progressive?** The Johnson and Earle book is typical of many social science based evolutionary accounts in telling a progressive story of increasing socio-cultural progress with time. This is a controversial topic in organic evolution, with perhaps a plurality of biological evolutionists being non-progressivists. Can we boil the idea of progressive evolution down to a scientific model or models or is it an inevitably just a specious claim?

April 14. **How much of cultural evolution is functional?** Johnson and Earle also emphasize a functional account of culture and social organization. Other social scientists are quite hostile to functional arguments, preferring cultural-historical explanations for much of what people do. Adaptationism in evolutionary biology has similarly invited controversy. But even progressivism implies that some societies are less functional than others, so Johnson and Earle cannot have it both ways completely. What is the general structure of arguments and models supporting adaptation versus non-adaptive explanations of particular cultural variants?

April 21. **Can we make evolution a predictive science?** Scientists often say that the goal of science is prediction. In their last chapter, Johnson and Earle describe contemporary evolutionary trends but avoid much extrapolation into the future. Others are bolder, for example Francis Fukuyama. What are the prospects for a predictive theory of cultural evolution?

April 28. **How analogous is cultural to genetic evolution?** In the first three chapters of NBGA we lay out a "structures and forces" argument about how cultural evolution works. It involves a series of analogies and disanalogies between genetic and cultural evolution. Human behavioral ecologists, evolutionary psychologists, meme theorists, and rational choice theorists all have a somewhat different slant on culture and cultural evolution. Critique the Boyd/Richerson approach from one of the other points of view.

May 5. **Is culture an adaptation?** Richerson and Boyd in chapter 4 of NBGA lay out an hypothesis for how and why culture acts as an adaptation. But they allow as how the idea of culture-as-an-adaptation presents many puzzles. What other evolutionary explanations for the origins of culture are plausible?

May 12. **Is culture maladaptive?** Richerson and Boyd in chapter 5 of NBGA argue that genetic and cultural maladaptations arise for the same basic reasons. Taking chapters 4 and 5 together, how well have they succeeded in answering the problems with functional versus non-functional explanations raised by more conventional social scientists? (See discussions on April 7 and 14.)

May 19. **Do genes and culture coevolve?** Richerson and Boyd claim so in chapter 6 of NBGA. We also argue, more controversially, that cultural evolution plays a leading rather than lagging role in some coevolutionary circuits. EO Wilson, by contrast, thinks that everything eventually reduces to genes. Many evolutionary social scientists think that only genetic fitness counts at the end of the day no matter what culture might do before midnight. Social science super-organicists deny any, or at least any very interesting, genetic effects on cultural evolution. Who is right, and why? Or, what evidence do we need to decide?

May 26. **Are humans subject to group selection?** Richerson and Boyd (chapter 6 of NBGA again) propose a particular hypothesis based on group selection of cultural variation plus gene-culture coevolution. Darwin proposed the original hypothesis along these lines. Others, such as David Wilson, EO Wilson, Richard Alexander, W.D. Hamilton and I. Eibl-Eibesfeldt argue that group selection directly on genes might be possible in humans.

June 2. **How do the symbolic aspects of culture evolve?** Human culture and some aspects of chimpanzee culture exhibit symbolic variation. Human language is a very rich example. Dialect variation shadows most important social fault lines. This variation is taken by some evolutionary social scientists to be purely neutral (see especially the evolutionary archaeologists Robert Dunnell). Traditional cultural anthropologists such as Marshall Sahlins were often afunctionalists of a different stripe. Still others proposed various functions for symbolic systems like religion (See R.A. Rappaport). Richerson and Boyd, still in chapter 6 of NBGA, propose that symbolic variation functions something like pre-mating isolation mechanisms of species to prevent people from imitating foreign ideas that would not function well in a person’s habitat or social system. What does the evidence suggest about these ideas?