Anthro 222 Syllabus

Medical Ethnobiology:
The View of Plants and Animals in Traditional Societies

Instructor: Kevin P. Groark

Course Description:

This course is intended for graduate students as well as advanced undergraduates. It provides a comprehensive introduction to theoretically-oriented ethnobiology, with a focus on medical ethnobotany. Broadly defined, ethnobiology consists of "the study of the direct interrelations between humans, plants, and animals, and their evolutionary consequences; the past, present, and future importance of diversity and of change in these interrelations; and the emerging awareness on the part of ethnobiologists of the relevance of these considerations" (Johns 1990:10-11). Ethnobiologists are interested in issues ranging from ethnotaxonomy to the evolution of diet and the search for new drugs. As a discipline, contemporary ethnobiology is situated between fields as diverse as anthropology, biology, psychology, and pharmacology, and integrates the methods and theories of each field. Rather than constituting a weakness, this interdisciplinary diversity has provided the field with a hybrid vigor lacking in more narrowly conceived areas of inquiry, as well as a conceptual relevance that bridges disciplines.

A central goal of class lectures and discussions will be to relate the empirical ethnobiological data we are studying to broader anthropological and epistemological issues, such as: the influence of language on thought, materialist versus idealist approaches in anthropology, the existence of cognitive universals, universalist-comparitivist versus particularist approaches to human knowledge, the relationship between "scientific" knowledge and "folk" knowledge, and the value of adaptationist logic in understanding human thought and behavior. This course, then, provides a concrete focus for addressing and thinking through some of these core debates.

Course Structure:

The course is divided into three general sections. In the first section (Weeks 1.1-7.1), we explore theoretical ethnobiology (the recognition, classification, and naming of plants and animals in traditional societies). The goal for this part of the course is twofold: 1) to provide you with a command of the empirical data and theoretical claims of modern ethnobiology; and 2) to illustrate the ways in which a focus on human classification of the natural world can contribute to our understanding of basic cognitive processes, as well as provide insights into one facet of our shared, universal human nature. This section will be dedicated to an in-depth examination of the empirical data upon which these "universalist" theoretical formulations are based, and will ask the following questions: Why do people everywhere carve the world into roughly similar chunks? How does culture influence the growth and diversification of folk taxonomies? And what are the cognitive bases for this pan-human disposition?

The second section of the course (beginning Week 7.2) moves us from theory to practice. We will examine the many different research approaches subsumed under the label "ethnobiology," including: ethnopharmacology, the study of plant-based psychotropics, and medical ethnobotany. You will become familiar with some of the basic practical skills needed to carry out ethnobotanical fieldwork, including collection of specimens, preparation of herbarium vouchers, and ethnobiological research design. A small field project will allow you to put these skills into practice. After reading and discussing representative works from each of the approaches

mentioned above, we will have a class discussion about the ethical implications of ethnobotanical research. Although the readings do not exhaust the varied approaches to contemporary ethnobiological research, they provide a roadmap of the dominant trends, allowing you to pursue those questions you find most engaging.

The course closes with a theoretical "recap," in which we reconsider the place of ethnobiology within the context of evolutionary theory, in particular, as it relates to the field of evolutionary psychology. We will explore the evolutionary implications of human-plant-animal interactions in diet, medicine, and attempt to understand how these unique cognitive and behavioral adaptations to the biotic world might have developed.

Course Requirements:

***Participation and Readings*—**While this class admits upper-division undergraduate students, it is paced as a graduate-level seminar in workload and participation requirements. Although I will be lecturing each week, a period will be set aside for discussion and comment—and your participation is essential. Each class meeting has several assigned readings that should be read before class. The reading load is moderate (~50-60 pp. for each meeting), and the discussions will be based on the assumption that you have already read the assigned texts.

***Abstracts*—**In order to encourage you to keep up with readings, I am requiring that you prepare brief critical abstracts of each week's readings. This will serve two purposes: 1) You will have notes in front of you during the discussion (and by the end of the course, you will have an annotated bibliography of key works); and 2) it will provide me with feedback on the clarity of the material, and student concerns. And best of all, *these abstracts take the place of a midterm and final*. Abstracts are due at the end of each week, in class.

***"Mystery Specimen" Project*—**Near the middle of the semester, a small weekend project will be announced. Your task will be to find an unfamiliar plant or animal-based food or medicine, collect basic ethnobiological data, and present your results in a show-and-tell session. Details will be provided in lecture.

***Term Paper*—**In addition to participation, each student will write a 20-25 page term paper in which they examine the transcultural use of a particular plant or animal, researching the biology and chemistry of the species in question, as well as its cultural significance. Details, possible topics, and model papers will be provided in the first week of class. An outline and preliminary bibliography is due by the end of the 7th week of classes, and the last two meetings of the semester are dedicated to student presentation of their research.

Required Texts:

Berlin, Brent. 1992. *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton, NJ: Princeton University Press.

Course Reader with additional required articles and book sections: Available from Westwood Copies.

Course Grading:

Participation	15%
"Mystery Specimen" Project	10%
Abstracts	25%
Term Paper	50%

Lecture and Reading Schedule

Presented below is a lecture and reading schedule for the course. The readings listed under each class description should be read *before you come to class*. [Required readings for the first half of the course will come from Berlin (1992) and the reader. All required articles (as well as any labeled "optional") are in your course reader]. References for all assigned articles, lecture citations, and "suggested readings" can be found in the general bibliography at the end of the course outline.

Introduction to the Course and the Field of American Ethnobiology

1.1—Course Introduction: The Nature of Ethnobiology

Berlin (1992). *Ethnobiological Classification.* Pp. 3-13

Ford, R.I. 1978b. *Ethnobotany: Historical Diversity and Synthesis*. In *The Nature and Status of Ethnobotany,* edited by R.I. Ford, pp. 33-49. Ann Arbor: University of Michigan Press.

1.2—Ethnobiology and the Development of American Ethnoscience

Frake, C.O. 1962. *The Ethnographic Study of Cognitive Systems*. In *Anthropology and Human Behavior,* edited by T. Gladwin and W.C. Sturtevant, pp. 72-93. Washington, D.C.: Anthropological Society of Washington.

Conklin, H.C. 1962. The Lexicographical Treatment of Folk Taxonomies. *International Journal of American Linguistics* 28: 119-141

Kay, P. 1971. Taxonomy and Semantic Contrast. *Language* 68: 866-887

Classifying Nature Across Cultures: Ethnobiological Classification, Folk Taxonomy and Nomenclature

2.1—*Introduction to Ethnobiological Classification*

Berlin, Brent, Dennis Breedlove, and Peter Raven. 1973. General principles of classification and nomenclature in folk biology. *American Anthropologist* 75: 212-242

Berlin (1992). *Ethnobiological Classification.* Pp. 14-35.

2.2—*The Folk Genus I*

Berlin (1992). *Ethnobiological Classification.* Pp. 52-78

Bulmer, R.N.H. 1970. *Which Came First, the Chicken or the Egg-Head?* In *Échanges et communications, mélanges offerts à Claude Lévi-Strauss à l'occasion de son 60ème anniversaire,* edited by J. Pouillon and P. Maranda, pp. 1069-1091. The Hague: Mouton.

3.1—The Folk Genus II & Folk Species

Berlin (1992). *Ethnobiological Classification.* Pp. 90-96; 102-133

3.2*—The Influence of Culture on Ethnobiological Classification*

Brown, C.H. 1985. Mode of subsistence and folk biological taxonomy. *Current Anthropology* 26: 43-62

Berlin (1992). *Ethnobiological Classification.* Pp. 96-101; 272-290

Higher Order Taxa and the Role of Function & Symbolism in Ethnobiological Classification

4.1—Higher-Order Taxa I: Intermediate & Covert Taxa

Berlin (1992). *Ethnobiological Classification.* Pp. 134-160

Berlin, Brent, Dennis Breedlove, and Peter Raven. 1968. Covert categories and folk taxonomies. *American Anthropologist* 70: 290-299 (optional)

4.2*—Higher-Order Taxa II: Life-Forms, Unique Beginners & the Very Tips of the Tree of Life*

Berlin (1992). *Ethnobiological Classification.* Pp. 161-195

5.1—Class Discussion: The "Ultimate Test of Ethnobiological Theory"

There are no assigned reading for today, except for a general review of class and reading notes in preparation for our class discussion. This exercise is framed around Hunn and Berlin's "Ultimate Test of Ethnobiological Theory" (described in Berlin 1992:78-80).

Intra-Cultural Variation and Opposing Viewpoints

5.2—Cultural Transmission & Variation in Ethnobiological Systems

Ellen, R.F. 1979b. Omniscience and Ignorance: Variation in Nuaulu Knowledge, Identification, and Classification of Animals. *Language in Society* 8: 337-364.

Gardner, L.C. 1976. Birds, Words and a Requiem for the Omnicient Informant. *American Ethnologist* 8: 446-468.

Boster, J. S. 1986b. *"Requiem for the Omniscient Informant": There's Life in the Old Girl Yet*. In *Explorations in Cognitive Anthropology,* edited by J. Dougherty, pp. 177-197. Urbana: University of Illinois Press.

6.1—*Alternative Formulations and Critiques*

Ellen, R.F. 1986. Ethnobiology, Cognition, and the Structure of Prehension: Some General Theoretical Notes. *Journal of Ethnobiology* 6: 83-98.

Ellen, R.F. 1979a. *Introduction*. In *Classifications in their Social Context,* edited by R.F. Ellen and D. Reason, pp. 1-32. London: Academic Press.

Evolution, Cognition, and the Development of Ethnobiological Thought

6.2—*The Evolution of Ethnobiological Systems and the Development of Scientific Biology*

Berlin, Brent. 1972. Speculations on the growth of ethnobiological nomenclature. *Language and Society* 1: 63-98

Atran, Scott. 1996. *From Folk Biology to Scientific Biology*. In *The Handbook of Education and Human Development: New Models of Learning, Teaching and Schooling,* edited by D. Olson and N. Torrance, pp. 646-682. Oxford: Blackwell Publishers.

7.1—*Natural Kinds and Mental Modules: The Cognitive Bases of Folk Taxonomy*

Thornhill, Nancy W., John Tooby, and Leda Cosmides. 1997. *Introduction to Evolutionary Psychology*. In *Human by Nature: Between Biology and the Social Sciences,* edited by P. Weingartet al., pp. 212-238. London: Lawrence Erlbaum Associates, Publishers. (SKIM)

Atran, Scott. 1995. *Causal constraints on categories and categorical constraints on biological reasoning across cultures*. In *Causal Cognition: A Multidisciplinary Debate,* edited by D. Sperberet al., pp. 205-233. Oxford: Clarendon Press.

Hatano, Giyoo and Kayoko Inagaki. 1996. *Cognitive and Cultural Factors in the Acquisition of Intuitive Biology*. In *The Handbook of Education and Human Development: New Models of Learning, Teaching and Schooling,* edited by D. Olson and N. Torrance. Oxford: Blackwell Publishers. (OPTIONAL)

Practical Skills and Ethnobiological Research Design

7.2—*Basic Field Skills* (*Outlines and Preliminary Bibliographies of Research Paper Due Today!)***

Martin, Gary J. 1995. *Ethnobotany: A Methods Manual*. New York: Chapman & Hall. Pp. 28-65 (SKIM)

Berlin, B. 1984. *Contributions of Native American Collectors to the Ethnobotany of the Neotropics*. In *Ethnobotany in the Neotropics,* edited by G.T. Prance and J.A. Kallunki, pp. New York: The New York Botanical Garden.

Croom, E.M. 1983. Documenting and Evaluating Herbal Remedies. *Economic Botany* 37: 13-27.

8.1—*Class presentation of field projects*

Come to class prepared to discuss your finds! If it is tasty, safe, and inexpensive, bring enough for everyone to sample!

Ethnobiological Field Trips

8.2—*Field Trip to Local Botanical Garden*

Trip to local botanical garden to see medicinal and economically significant plants. Will discuss morphology, habitat, and the importance of collecting basic ecological data on ethnobiological specimens. Garden curators will talk to us about the important role of gardens in preserving biodiversity and storing germplasm.

9.1—*Field Trip to University Herbarium*

Visit with curators and learn how botanical specimens are mounted, identified, and stored. Learn the archival importance of voucher specimens, and why interdisciplinary research is essential to modern ethnobiology.

Ethnopharmacology, Medical Ethnobotany, and The Marketing of Traditional Knowledge

9.2—Ethnopharmacology and The Search for Plant-Based Drugs

Cox, P.A. and M.J. Balick. 1994. The Ethnobotanical Approach to Drug Discovery. *Scientific American* 270(6): 82-87.

Etkin, N.L. 1988a. *Cultural Construction of Efficacy*. In *The Context of Medicines in Developing Countries,* edited by S. Van der Geest and S.R. Whyte, pp. 299-326. Dordrecht: Kluwer Academic Publishers.

Etkin, N.L. 1988b. Ethnopharmacology. *Annual Review of Anthropology* 17: 23-42.

Elisabetsky, Elaine. 1986. New Directions in Ethnopharmacology. *Journal of Ethnobiology* 6(1): 121-128.

10.1—*Medical Ethnobotany and Consensus Theory in Evaluation of Folk Pharmacopoeias*

Browner, C.H., B. Ortiz de Montellano, and A.J. Rubel. 1988. A Methodology for Cross-cultural Ethnomedical Research. *Current Anthropology* 29(5): 681-702

Trotter, R. and M.H. Logan. 1986. *Informant Consensus: A New Approach for Identifying Potentially Effective Medicinal Plants*. In *Plants in Indigenous Medicine and Diet: Biobehavioral Approaches,* edited by N.L. Etkin, pp. 91-112. Bedford Hills, NY: Redgrave Publishing Co.

Ethnobiology of Hallucinogenic and Psychoactive Plants and Animals: Case Studies

10.2—*Psychoactive Ethnobiology I: Red Ants & Ayahuasca*

Groark, Kevin P. (1996) Ritual and Therapeutic Use of "Hallucinogenic" Harvester Ants (*Pogonomyrmex*) in Native South-Central California. *Journal of Ethnobiology* 16(1):1-27.

Groark, Kevin P. 1995. Ayahuasca and its Admixtures: A Pharmacological and Ethnographic Overview. *Manuscript Copy*

11.1— *Psychoactive Ethnobiology I: Tobacco*

Wilbert, Johannes. 1975. *Magico-Religious Use of Tobacco among South American Indians*. In *Cannabis and Culture,* edited by V. Rubin, pp. 439-461. The Hague: Mouton.

Wilbert, Johannes. 1991. Does pharmacology corroborate the nicotine therapy and practices of South American shamanism? *Journal of Ethnopharmacology* 32(1-3): 179-186

Groark, Kevin P. (Manuscript). The Angel in the Gourd: Therapeutic and Protective Uses of Tobacco *(Nicotinana tabacum)* among the Highland Maya of Chiapas, Mexico. To be submitted to *Journal of Ethnobiology* (Optional)

11.2—*Psychoactive Ethnobiology III: Coca Leaf*

Martin, R.T. 1970. The role of coca in the history, religion and medicine of South American Indians. *Economic Botany* 24(4): 422-438

Grinspoon, L. and J.B. Bakalar. 1976. *Cocaine: A Drug and its Social Evolution*. New York: Basic Books (Selections)

Weil, Andrew. 1981. The Therapeutic Value of Coca in Contemporary Medicine. *Journal of Ethnopharmacology* 3: 367-376 (Optional)

Ethics in Ethnobiology: Ethnopharmacology, Local Knowledge, and IPR

12.1—Ethics and Intellectual Property Rights (IPRs)

Nabhan, G.P., A. Jr. Joaquin, N. Laney, and Kevin Dahl. 1996. *Sharing the Benefits of Plant Resources and Indigenous Scientific Knowledge*. In *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights,* edited by S.B. Brush and D. Stabinsky, pp. 186-208. Washington, D.C.: Island Press.

Cunningham, A.B. 1991. Indigenous Knowledge and Biodiversity. *Cultural Survival Quarterly* 15(3): 4-8.

Elisabetsky, Elaine. 1991. Folklore, Tradition, or Know-How? *Cultural Survival Quarterly* 15(3): 9-13

King, Steven R. 1991. The Source of Our Cures. *Cultural Survival Quarterly* 15(3): 19-22

Kloppenburg, Jack Jr. 1991. No Hunting! Biodiversity, indigenous rights, and scientific poaching. *Cultural Survival Quarterly* 15(3): 14-17

12.2—Equitable Compensation and the Pursuit of New Drugs

King, Steven R., Thomas J. Carlson, and Katy Moran. 1996. *Biological Diversity, Indigenous Knowledge, Drug Discovery, and Intellectual Property Rights*. In *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights,* edited by S.B. Brush and D. Stabinsky, pp. 167-185. Washington, D.C.: Island Press.

Grifo, F.T. and D.R. Downes. 1996. *Agreements to collect biodiversity for pharmaceutical research: Major Issues and Proposed Principles*. In *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights,* edited by S.B. Brush and D. Stabinsky, pp. 281-304. Washington, D.C.: Island Press.

Posey, D.A. 1990. Intellectual Property Rights and Just Compensation for Indigenous Knowledge. *Anthropology Today* 6(4): 13-16.

Evolution, Adaptation, and the Origins of Diet and Medicine

13.1—Chemoecology and Human Adaptation to Plant Chemicals

Johns, Timothy. 1986. *Chemical Selection in Andean domesticated tubers as a model for the accquisition of empirical plant knowledge*. In *Plants Used in Indigenous Diet and Medicine: Biobehavioral Approaches,* edited by N.L. Etkin, pp. 266-288. South Salem, NY: Redgrave Publishers

Johns, Timothy. 1990. *With Bitter Herbs They Shall Eat It: Chemical Ecology and the Origins of Human Diet and Medicine*. Tucson: University of Arizona Press. Pp. 1-25

13.2—Phytochemicals and The Evolution of Medicine

Huffman, M.A. 1997. Current Evidence for Self-Medication in Primates: A Multidisciplinary Perspective. *Yearbook of Physical Anthropology* 40: 171-200

Johns, Timothy. 1990. *With Bitter Herbs They Shall Eat It: Chemical Ecology and the Origins of Human Diet and Medicine*. Tucson: University of Arizona Press. Pp. 251-291

Student Paper Presentations

For the next two meetings, you will be running the show! Each student is expected to present a brief, 10-15 minute presentation on the subject of their term paper. Slides are welcome, but not required. Food and drinks will be provided.

14.1—Presentations of Student Research Papers

14.2—*Presentations of Student Research Papers, cont'd*

15.1—Closing Comments: Future Directions and Careers in Ethnobiology