

TEACHER'S CORNER: BIOLOGY AND ANTHROPOLOGY DUET

Editor's Note: Cam Griffiths shares "Animal Behavior; Behavioral Anthropology," an innovative course she designed. The George Washington University/Smithsonian Institution Anthropology for Teachers Program inspired her to unite biology and anthropology into an evolution of behavior course, in lieu of Advanced Biology for high school seniors. The class meets six hours each week with two two-hour blocks allowing time for essential field trips. Ms. Griffiths has taught the course for the last three years at Stone Ridge School in Bethesda, Maryland. After teaching for 18 years, Griffiths and her husband are off to Jamaica this June for two years of community work with the Peace Corps. "It is the only thing that could make me leave teaching," she says.

"Animal Behavior; Behavioral Anthropology" is based on the belief that behavior in the animal kingdom forms a continuum. The first semester traces behavioral evolution from one-celled organisms to non-human primates; the second semester focuses on similar behaviors in humans. Students' involvement, intensive observations, and original research make the course especially exciting and academically challenging.

- I. First semester: Animal behavior
Text: John Alcock. Animal Behavior 3rd edition (Sunderland, MA: Sinauer Associates, 1984).

The premise of this text is that evolutionary theory is the key to understanding animal behavior. In this context the author presents, with well-documented examples, such topics as migration/territoriality; cyclical changes; parent-offspring relationships; the ecology of feeding behavior, reproductive behavior; and

predator/anti-predator behavior; and the evolution of societies.

The observations from films, video tapes, and field trips described below correlate with the readings and are organized so that students' learning moves up the phylogenetic ladder.

- A. Microscopic and Other Simple Animals. Students observe behavior through films on animals such as amoeba, planaria, and hydra.
- B. Insects: The Insect Zoo (Museum of Natural History). Using an ethogram (see sample), each student observes for one hour the behavior of an inhabitant in the Insect Zoo. Students work in 15-minute segments with the aid of a stop watch and are able to complete four sequences. Good quantitative data, rather than superficial impressions, result from this method.

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C. Marine Animals (Baltimore Aquarium). Students select one animal to observe and complete an ethogram.

During class, films give students additional practice observing and analyzing animals in action.

D. Birds to Non-Human Primates (National Zoo). For about ten two-hour sessions, students observe, in evolutionary order, the reptiles, birds, hoofed animals, small mammals, and non-human primates. Students choose a particular behavior to observe such as play, grooming, submission/aggression, locomotion, parent/infant behaviors, or communication, noting when and how this behavior is expressed. For example, one student may observe the otter at play. Her observations of other animals (parrots, lizards, elephants, spider monkeys), made throughout the semester and recorded in her ethogram, allow for a comparison of time spent at play. Note: an absence of play is significant.

Each student's observations (collection of ethograms) are recorded and analyzed in a major paper incorporating not only her original research but also information gleaned from supplemental readings. The paper constitutes 55% of the semester grade.

Text: Konrad Lorenz. On Aggression (San Diego, CA: Harcourt Brace Jovanovich, 1974).

II. Second Semester: Behavioral Anthropology

The students scrutinize human behavior in different cultural settings through four different learning units. Students focus as much as possible on the same behaviors they observed in the first semester. Museum visits, readings, films, video tapes, and classroom activities rather than ethograms are the primary sources of information. Instead of tests, weekly essays synthesize the students' readings and activities.

E. A Behavioral Bridge from Non-Human Primates to Humans (Museum of Natural History and the National Zoo). The course phases into the second semester's focus on humans with the three-part Smithsonian program "Monkeys, Apes, and Humans." (This free program is available from Friends of The National Zoo, c/o The National Zoo, 3001 Connecticut Ave., N.W., Washington, D.C. 20008, or call (202) 673-4955.)

A. Archeology Unit

Film: "4 Butte 1: A Lesson in Archeology"

Activity: The Bethesda Meeting House, the landmark from which Bethesda got its name, is a five minute walk from school and provides our archeological site. The pastor talks about the history of the church and the cemetery "talks" about the community's past. The students conduct a cultural study from the information they can find on the gravestones. (For an article on graveyard study write: Ann Bay, ART TO ZOO, Office of Elementary and Secondary Education, A&I 1163, Smithsonian Institution, Washington, D.C. 20560.)

Text: Jane Lancaster. Primate Behavior and the Emergence of Human Culture (NY: Holt, Rinehart, and Winston, 1975).

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Students write essays to define the culture of the people buried here and the relationship of the community to the Meeting House. Students also consider what the building might represent if they were archeologists excavating it 3,000 years from now.

B. An African Setting

Readings: Colin Turnbull. The Forest People (NY: Simon & Schuster, Inc. (Touchstone Books), 1968). Richard Goldsby. Race and Races, 2nd edition (NY: Macmillan, 1977).

Film: "Pygmies of the Ituri Forest"

Activity: Bafa Bafa, A Cross-Cultural Simulation (available from Simile II, P.O. Box 910, Del Mar, CA 92014).

Tours of the National Museum of African Art and the Africa Hall in the National Museum of Natural History.

Students look at such human behaviors as play, parent/offspring relationships, and territoriality in Turnbull's study of the BaMbuti Pygmies.

C. Native Americans

Readings: Ethnographies on the Kwakiutl.

Teaching Kit: Indians View Americans, Americans View Indians by Rachel Reese Sady, Olcott Forwad (Educational Audio Visual Inc., Pleasantville, NY 10510).

Film: "Ishi in Two Worlds"

Activities: Field logs are kept by students visiting the Indian and Eskimo Culture Halls in the National Museum of Natural History.

D. Anthropologists Look at America
Readings: Brenda Mann and James P. Spradley. The Cocktail Waitress: Woman's Work in a Man's World (NY: John Wiley, 1975). John A. Hostetler and Gertrude Huntington. The Hutterites in North America (NY: Holt, Rinehart, and Winston 1980). Carol Stack. All Our Kin: Strategies for Survival in a Black Community (NY: Harper and Row, 1974).

Films and video tapes: Films are available on the Amish, Hutterites, and Shakers. Many of the films listed above may be rented from Pennsylvania State University, Audio Visual Services, Special Services Bldg., University Park, PA 16802 (free catalogue available).

Activities: Students write their own "Nacirema" essays modelled after "Body Ritual" by Horace Miner. Field logs are kept for the Nation of Nations exhibit at the Museum of American History. "Let's Celebrate" slides from the Celebration exhibit at the Renwick Gallery.

This is an exciting course to teach; the students become very involved. Leaving campus curbs "senioritis" and the students evolve into a tightly knit group from weekly field trips.

Because the course deals directly with two disciplines, biology and anthropology, as well as indirectly with history, geography, social science, and religion, it provides a good interdisciplinary approach for seniors and gives them an opportunity to correlate a number of courses they have taken for four years. It was important to include anthropology in the title of the course, because colleges are pleased to see that

students had anthropology in high school. It is a definite enrichment course from the colleges' perspective.

Procedure for Using Ethogram:

1. Students do a recognizance of about 5 minutes. From this they determine what might be logical headings under the solitary and social parts of the ethogram such as the ones I have chosen.
2. Students form teams of two: one member holds the stop watch while the other records.
3. Recorder puts a check in the box to indicate the first time that activity happens in that minute but does not repeat the checks if that activity occurs again in that minute.
4. When timekeeper indicates the end of a minute, the recorder circles the check of the activity taking place at that time.
5. To determine the percentage of time each activity occurs in a 15 minute period, total the circled checks in each column, multiply by 100 and divide by 15 minutes.

Note on the ethogram:

"NV" means not visible.

The "other" category is to include any activity not represented by a column heading. It should be described under "comments."

The students were able to complete four to six ethograms in any one weekly observation period. They were encouraged to continue their observation on the same animal, rather than sample a variety of individual animals, for a more complete data base. Each team observed a different animal.

Time (minutes)	Solitary						Social				Comments		
	groom- ing	walk	run	eye movement	head mvmt.	other NV	groom- ing	biting	nursing	chasing play		other NV	
1													
2													
↓													
15													
Total													
% (min.)													

Sheet Number _____ Date _____
 Time _____ Weather _____
 Focal Animal _____ Team _____ Name _____