Summary

This course is an overview of Primate Behavioral Ecology, the study of the evolution of primate behavior, and primate social and mating systems. The course takes as its basis the principles of evolutionary biology and the processes of natural and sexual selection, which act to increase the success of individuals in surviving and reproducing.

The course will be divided into several thematic sections:

**Part I:** Primate Biology and Taxonomy - In this section, we look at the natural history, diversity and classification of the Primates, and investigate the processes used to determine species’ inter-relationships.

**Part II:** Fundamental Principles – In this section, we discuss the basic evolutionary principles on which modern studies of primate behavior are based. We also discuss the history and philosophy of primate studies, from their original descriptive nature, through the tradition of ethology, and into contemporary behavioral ecology.

**Part III:** Natural Selection and Social Systems – Natural selection acts to increase an individual’s success in surviving and reproducing. Key selective pressures for primates include ensuring they obtain sufficient food and avoiding predation. These selective pressures have had a strong influence on how primates group themselves in space and time – their social systems. We will discuss the socio-ecological model, which attempts to use the primary selective forces acting on primates such as feeding competition and avoiding predation to explain the diversity in primate social systems.
**Part IV:** Sexual Selection and Mating Systems – Sexual selection, the other major process of evolutionary change identified by Charles Darwin, acts to improve an individual’s success in competing for and attracting mates. Here we will explore how this process has shaped the mating systems of primates. We will finish by discussing the implications of both natural and sexual selection for understanding variation in primate life-history and demography.

**Part V:** Intelligence and communication – One of the major reasons that people are fascinated by primates is their seemingly advanced intelligence and sophisticated communication systems. Here we will review theories on the origins of this intelligence, studies of primate cognition, and the rich literature on primate signaling.

**Part VI:** Current and Future Directions – Here we review some of the most important contemporary areas of study in primate behavioral ecology and discuss the directions in which these fields are going. We will finish by discussing the issues that are driving present primate populations to extinction and the different methods and philosophies that are being employed to try to save them.

**The three approaches of behavioral ecology**

There are three main approaches commonly used to investigate the behavioral ecology of primates: phylogenetic comparison, observation, and experiment. The course will feature three classes and accompanying assignments, in which you will learn something about each of these.

**Readings**

Readings have been assigned to each class, as outlined below. Additional readings may be assigned.
Assessment

Participation (10%) You are expected to attend class, having read the required reading for the session, and willing to show interest and ask relevant questions. As this represents 10% of your grade, attendance and active participation are crucial if you want to do well in this class.

Behavioral observation assignment (15%) Following a class in which behavioral observation methods will be presented, you will be given the task of going to visit some non-human primates at any of their publically available locations in NYC (e.g. Central Park Zoo, Bronx Zoo). You will be required to undertake some behavioral observations of your own on a species of your choice, and prepare a paper (approx. 8 pages) based on this experience.

Midterm examination (20%) This will be a multiple choice test that will take place in class. You will be tested on topics covered in the first half of the course.

Comparative method assignment (15%) We will spend a class looking at the comparative method, which compares between species to make inferences about the selective pressures that have caused the evolution of traits. You will be given an assignment (approx. 7 pages) in which you will be required to describe and assess the contribution that phylogenetic comparison has made to the study of the evolution of a specific set of traits.

Experiment assignment (15%) We will look at the experimental approach in behavioral ecology. Many areas of primatology are amenable to this approach, and we will discuss the types of experiments that have been utilized. You will be given an assignment (approx. 5 pages) consisting of some observations of wild primates. You will be asked to develop your own hypotheses that might explain the observations. You will then be asked to invent and describe experiments that could be undertaken to distinguish between your hypotheses.

Final examination (25%) This will take the form of a written exam in which you will be required to provide extended answers to questions based on the course material.
### Part 1 – Primate Biology and Taxonomy

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<tr>
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<tr>
<th>Class 2</th>
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<th>Class 3</th>
<th>Primate taxonomy, phylogeny and natural history II</th>
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<th>Class 4</th>
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## Part II – Fundamental Principles

### Class 5
Evolutionary theory: natural and sexual selection

**Required reading**

### Class 6
Behavioral ecology

**Required reading**

### Class 7
The history and philosophy of primate behavioral studies

**Required reading**
Part III – Natural Selection and social systems

Class 8
Nutrition, foraging and ranging

Required reading

Class 9
Predation

Required reading

Class 10
Social systems: The socio-ecological model

Required reading

Class 11
Approaches in Behavioral Ecology 1: Observation

Required reading
Class 12

No class – Fall Break

Class 13

Parenting and inter-generational conflicts

**Required reading**


Class 14

In class – MID-TERM EXAMINATION
## Part IV - Sexual Selection and mating systems

### Class 15

**Sexual selection and mating systems I**

**Required reading**


### Class 16

**Sexual selection and mating systems II**

**Required reading**


### Class 17

**Approaches in behavioral ecology II: the comparative method**

**Required reading**


### Class 18

**Life-history and demography**

**Required reading**


### Part V - Intelligence and communication

#### Class 19

The evolution of intelligence

**Required reading**


#### Class 20

Co-operation, coalitions and conflict

**Required reading**

Byrne, R.W. 1997 Machiavellian intelligence. Evolutionary Anthropology 5: 172-180


#### Class 21

Cognition

**Required reading**


#### Class 22

Communication

**Required reading**


#### Class 23

Approaches in behavioral ecology III: experiment

**Required reading**


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**Required reading**

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<th>No class – Thanksgiving</th>
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<th>Class 26</th>
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**Required reading**

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<th>Class 27</th>
<th>Conservation biology</th>
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**Required reading**

| Class 28 | In Class - FINAL EXAM |