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Course description

Increased social and communicative complexity is one of the defining features of humans compared to other mammals. Key insights into the evolution of human communication can come from studying our most closely related extant relatives, our fellow members of the Primate order. The present course features a mixture of lectures and discussion classes to consider contemporary topics in primate (including human) communication. Topics covered include definitions of communication and consideration of its major theoretical issues such as the difference between signals and cues, signal honesty, and concepts of signal information content and evolutionary signal design. Sections of the class focus on communication in different sensory modalities – olfactory, auditory and visual, as well as multimodal communication, before discussing theories and issues related to the evolution of language. The class finishes by considering some of the most contemporary topics in primate communication.
**Summary of course structure**

The course will feature a mixture of lecture and discussion classes and will be divided into several thematic sections. Each of these will begin with 1-2 lectures outlining important background material, followed by several discussion classes in which we read and discuss current topics, publications and issues in that area.

The course sections are:

**Part I: What is communication?** The section introduces the topic of communication, and the primates. We will discuss different definitions of what constitutes communication, the differences between signals and cues, theories on the maintenance of signal honesty, the concept of information in communication and other central elements of animal communication theory.

**Part II: Olfactory communication.** Many primates, especially strepsirrhines such as lemurs, galagos and lorises, rely heavily on olfaction to communicate. We will begin with a lecture that gives an overview of the types of olfactory signals seen among the primates, and issues related to olfactory sensory perception, and will then discuss recent publications and issues in the area of olfactory communication, especially on topics of scent marking and mate choice, including olfactory mate choice in humans.

**Part III: Vocal communication.** From female copulation calls to male loud calls of dominance, and from affiliative grunts between females to primate ‘baby talk’ from mothers to infants, vocal communication is critical to how primates communicate. We will begin with a lecture that gives an overview of the types of vocal signals seen among the primates, and issues related to aural sensory perception. We will then read and discuss recent publications and issues in the area of vocal communication, especially on the topics of copulation calls, food calls, and territorial calls.

**Part IV: Visual communication.** Primates are notable for their move towards increased reliance on vision compared to other mammals. Many of the most famous primate signals are visual, such as the red and blue colors of the mandrill’s nose, and the female sexual swellings of species such as baboons. Visual signals range from sexually-selected signals such as these, to the gestural and facial expressive communication used by modern humans.
We will begin with a lecture that gives an overview of the types of visual signals seen among the primates, and issues related to visual sensory perception. We will then read and discuss recent publications and issues in the area of visual communication, especially on the topics of sexual swellings, gesture and facial expression, and the evolution and maintenance of polymorphic vision among New World monkeys.

**Part V: Multi-modal communication.** Though we can clearly identify distinct signals that communicate in particular sensory modalities (e.g. visual, vocal), much of primate communication is multi-modal in nature, and involves signals in multiple sensory modalities that are received and interpreted using every sensory system. Here we will discuss issues in the consideration and classification of multi-modal signals and how signals received by different sensory systems are integrated in the brain. We will also consider issues and approaches related to documenting the relationship of different signals to each other, how they combine to signal different things to different receivers, and the processes that may have led to the evolution of multi-modal communication.

**Part VI: The evolution of language.** Linguists, psychologists and primatologists alike study primates in part because of what they can tell us about the evolution of human cognition and communication, including language. In this section of the course, we will discuss what language is (and isn’t), review theories on the evolution of language, and consider the different approaches one can take to shed light on one of the most fundamental developments in human evolution.

**Part VII: Current and Future Directions** – Here we review some of the additional contemporary areas of study in primate communication, and discuss the directions in which the field of primate communication is heading. These include the assessment of bystander/audience effects, and the consideration of signaler and receiver experience and familiarity.

**Required Readings** are set for each class. Additional readings may be added. The total estimated reading load will represent an average 65 pages per week.
## Assessment

**Participation (10%)**  You are expected to attend class, having read the required reading for the session, and willing to show interest, engage in discussion 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.

**Term paper (20%)** You will be asked to write one term paper to answer the question: “Is olfaction important in human communication?”

**Midterm examination (25%)** This will be a combination of multiple choice and short answer assessment that will take place in class. You will be tested on topics covered in the first half of the course.

**Research program design (20%)** You will be asked to create and write out your own research program, including data you would collect and experiments you would perform, to test a series of given hypotheses about the function of primate multimodal signals.

**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 I – What is Communication?

#### Class 1
Lecture - Introduction to the class and to communication

**Required reading**

#### Class 2
Lecture - Introduction to the primates, primate signals, and primate sensory systems

**Required reading**

#### Class 3
Discussion – Do animal signals contain information?

**Required reading**

#### Class 4
Discussion – What mechanisms can keep signals honest?

**Required reading**

#### Class 5
Discussion – Sensory systems and sensory drive; signal form and function; signals vs cues

**Required reading**
# Part II – Olfactory Communication

## Class 6
Lecture – Primate olfactory communication

**Required reading**

## Class 7
Discussion – Scent marking and olfactory mate choice

**Required reading**

## Class 8
Discussion – Olfaction in human communication

**Required reading**
### Class 9
#### Lecture – Primate vocal communication

**Required reading**

### Class 10
#### Discussion – Primate copulation calls

**Required reading**

### Class 11
#### Discussion – Territorial calls; food calls; baby talk?

**Required reading**
- Hauser MD (1992) Costs of deception: cheaters are punished in rhesus monkeys (Macaca mulatta) *Proc Natl Acad Sci USA* 89:12137-12139

### Class 12

**MID-TERM**
**Part IV – Visual Communication**

**Class 13**

Lecture – Primate visual communication  
**Required reading**  

**Class 14**

Discussion – The evolution of primate sexual swellings  
**Required reading**  

**Class 15**

Discussion – Polymorphic color vision  
**Required reading**  

**Class 16**

Discussion – Gesture; facial expression  
**Required reading**  
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<th>Lecture – Multimodal communication</th>
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<th>Class 18</th>
<th>Discussion – Classifying multimodal signals</th>
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<th>Class 19</th>
<th>Discussion – Why signal in multiple modalities?</th>
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<th>Class 20</th>
<th>Discussion – Designing experiments in multimodal communication</th>
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<th>Class 21</th>
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### Class 22

**Lecture – The evolution of language**

**Required reading**


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### Class 23

**Discussion – Grooming, gossip and the evolution of language**

**Required reading**


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### Class 24

**Discussion – Are primate vocalizations ever referential?**

**Required reading**


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### Class 25

**Discussion – The evolution of speech**

**Required reading**

## Part VII – Contemporary topics

### Class 26
Discussion – Bystander/audience effects

**Required reading**

### Class 27
Discussion – Familiarity and experience effects

**Required reading**

### Class 28

**REVIEW CLASS**