



THE UNIVERSITY OF ARIZONA  
COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES

## Community Classroom

### **Language, Mind, and Brain**

Fall 2019

Tuesdays and Thursdays, 5:30-7:30 p.m.

October 17-December 10

Aerospace and Mechanical Engineering Building (AME) # S202

1130 N. Mountain Avenue

#### **Co-Instructors:**

- Haury Laureate Professor Noam Chomsky
- Regents' Professor Tom Bever
- Professor Massimo Piattelli-Palmarini

#### **Contact Information:**

- SBS Community Classroom: Kerstin Miller  
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- Teaching Assistant: Shannon Grippando [uarizonaling211@gmail.com](mailto:uarizonaling211@gmail.com)

#### **Course Description:**

This course uses language as a lens into the human mind and brain. **We explore the field of “biolinguistics,”** the scientific investigation of language and mind that Noam Chomsky founded 70 years ago. The theme of this program and the course is that language and other mental abilities are based in a combination of genetic capacities, maturation, experience, along with physical and computational constraints. Professors Chomsky, Bever, and Piattelli-Palmarini will take turns lecturing individually and in occasional joint discussions: time will be allotted for discussions on a range of topics that integrate the study of language with research on the mind and brain.

A few examples of themes that run through many of the specific classes include:

- How does being puzzled about simple everyday observations contribute to scientific progress (Chomsky)?
- How has language science revealed and reflected basic issues in cognitive science (Bever)?
- What does language science tell us about the nature and universal properties of language (Chomsky)?

- What do we know about how the brain is organized for language and cognition (Piattelli-Palmarini)?
- What does the perception of speech tell us about unconscious computations and consciousness (Bever)?
- What do we know, and what are researchers learning about the genetics and evolution of language and mind (Piattelli-Palmarini)?
- Why does word meaning depend on mental processes as well as maps of the world (Chomsky)?

### **Class Format:**

Each class meeting will consist of **two 55-minute lectures divided by a 10 minute break with questions and discussion interspersed through each lecture.**

Once they are registered, Community Classroom attendees have an experienced Teaching Assistant devoted to them, to answer questions and help with the course content. They will receive access to all the posted readings. Unlike their fellow UA students, Community members do not take quizzes and write papers and can go through the readings at their own choice and pace.

The course schedule and a brief description of topics (subject to slight changes, final syllabus will be available by the first day of class, Oct. 17: students should consult the course description then to see the final schedule).

The course is divided into two main themes.

The first explores evidence of different kinds that language is not based on words alone, but on sentences and syntactic organization of words into sentences. The second focuses on what language is, how we can develop a theory of it, how it integrates with behavior and the brain; how it may have evolved.

There will be time for some audience questions during each class. In addition, several classes will include discussion questions posed by the audience over email. We encourage class attendees to send your questions after each class, or as you think of them later. Please email questions to [uarizonaling211@gmail.com](mailto:uarizonaling211@gmail.com)

### **Readings:**

All readings and videos have been uploaded to the **Forum website** that was created specifically for Community members. You need to be registered for the course in order to access those materials.

## **THEME 1: THE SENTENCE**

**October 17:** Overview of the course. Then, **the nature of scientific theories:** recognizing that everyday facts required real explanations: the discovery and invention of gravity as an example: historical review on Galileo, Newton etc. The continuing mystery of what motion really is. (Chomsky). Comments by Piattelli-Palmarini and Bever and basic evidence for the innateness of sentences in human language.

**October 22: Overview of major theories in Cognitive Science:** 19<sup>th</sup> century ideas about the mind and language; the rise and fall of behaviorism, and the rediscovery that language is not just made of words, but sentences are real psychological objects that need a theory. (Bever).

**October 24:** Discussion of **attempts and failures to teach languages to animals.** Particular discussion of the chimpanzee, Nim: speculations on why animals cannot learn anything like language. (Bever). Discussion of what a word is, and whether animals show any evidence of learning words. Comments by Chomsky and Piattelli-Palmarini.

**October 29:** Guest lecture on **early stages of language learning.** What are words? Very young children show evidence of awareness of syntax and sentences, not just words. (Professor Cecile McKee). Comments by Chomsky.

### **October 31:**

- a) Guest lecture on **how today's computer programs like Siri work:** they "understand" language based on enormous memories, but fail on simple tests of grammaticality of specific sentences. (Professor Sandiway Fong and Chomsky).
- b) **Discussion of the first five lectures** by instructors. To understand what language is, we need theories of words, sentences and the mind.

## **THEME 2: WHAT IS LANGUAGE?**

### **November 5:**

- a) **Why we think there is a biology of language.** Evidence from studies of rapid learning in childhood, special deficits associated with neurological cases, new genetic studies, etc.
- b) **Language in the Brain.** (Piattelli-Palmarini). Discussion by Chomsky and Bever.

**November 7: The nature of grammar – part I.** Overview of ideas about the structure of language. The convergence on the “minimalist” program of language research, with recursion as the primary process. (Chomsky). Discussion by Bever and Piattelli-Palmarini.

**Revised schedule for November and beyond:**

**November 12: The architecture of grammar**

Part One: What is universal in the architecture of grammar? (Chomsky)

Part Two: “Parameters” of language—dimensions on which language can vary, i.e. what is NOT universal (Piattelli-Palmarini)

**November 14:**

**American Sign Language** as a special case of how language can be externalized silently. What we can learn from teaching deaf children to read (Professor Sam Supalla).

**November 19:**

Part One: The Role of Natural Laws in shaping biological traits in general, and language in particular (Piattelli-Palmarini)

Part Two: Guest lecture by Doug Saddy, Professor of Language Sciences and Director of Centre for Integrative Neuroscience and Neurodynamics at the University of Reading in the UK

**November 21:**

Continuation of the discussion of where universals of language “come from” (Bever)

**November 26:** General discussion of Theme 2. Students will have generated prior questions on email about the content of the course, which will guide the discussion.

**November 28:** No class. Thanksgiving Holiday.

**December 3:**

- a) Semantics in relation to syntax and general knowledge (Piattelli-Palmarini).
- b) Why **typical theories of reference** to the world are inadequate: why, like inner language, meanings are internalized structures and processes (Chomsky).

**December 5:** Why only us? **The evolution of language**, what we know, what we can infer, what we don't know, what we hope to know. Chomsky, Piattelli-Palmarini, Bever and discussion.

**December 10:** Overview/Summary of the **main themes and phenomena in the course**: open period for class discussion.