LINGUISTICS

Director of undergraduate studies: Jim Wood (jim.wood@yale.edu), 304 DOW, 432-2454; ling.yale.edu

Linguistics is the scientific study of language. The major in Linguistics offers a program of study leading toward an understanding of phonological, grammatical, and semantic structure and of various approaches to descriptive, experimental, and historical linguistics. Majors may concentrate on theoretical, experimental, or computational linguistics, on various aspects of comparative grammar, or on a particular family of languages. Interested students should consult the director of undergraduate studies (DUS).

COURSES FOR NONMAJORS AND MAJORS
Students with no previous background in linguistics are encouraged to approach the field by taking a 100-level course.

REQUIREMENTS OF THE MAJOR
The major requires twelve term courses in linguistics and related areas, distributed as follows:

1. Breadth requirement (four courses). All majors must take a course in each of the core areas of phonology (LING 232) and syntax (LING 253). In addition, at least one course must be taken in any two of the six remaining core areas of linguistics: phonetics, morphology, semantics/pragmatics, computational linguistics, language and mind/brain, and historical linguistics.

2. Depth requirement (two courses). In one of the eight core areas of linguistics, students must take two additional courses beyond the introductory level.

3. Electives (four courses). Four additional courses relating to linguistics are required, at least one of which must be at the 200 level or above. Electives may be chosen from courses offered by the Linguistics department or, with approval of the DUS, from related courses in programs such as Anthropology, Classics, Cognitive Science, Computer Science, English, Philosophy, Psychology, or foreign languages.

4. Research requirement (one course). LING 490, Research Methods in Linguistics, is required and is usually taken in the fall term of the senior year.

SENIOR REQUIREMENT
Senior requirement (one course). Students attend a research colloquium and write a senior essay in LING 491 during the spring term of the senior year.

ADVISING
Combined B.A./M.A. degree program Exceptionally able and well-prepared students may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. See Academic Regulations, section K, Special Arrangements, "Simultaneous Award of the Bachelor’s and Master’s Degrees." Interested students should consult the director of undergraduate studies prior to the sixth term of enrollment for specific requirements in Linguistics.

REQUIREMENTS OF THE MAJOR
Prerequisites None
Number of courses 12 term courses (incl senior req)
Specific courses required LING 232, 253, 490
Distribution of courses 1 course each in 2 addtl core areas, as specified; 2 addtl courses beyond intro level in 1 core area; 4 electives, at least 1 at the 200 level or above
Substitution permitted Electives from related programs with DUS approval
Senior requirement LING 491

FACULTY OF THE DEPARTMENT OF LINGUISTICS
Professors Claire Bowern, Veneeta Dayal, Robert Frank, Laurence Horn (Emeritus), †Frank Keil, †Joshua Knobe, †Jason Stanley, †Zoltán Szabó, Petronella Van Deusen-Scholl (Adjunct), Raffaella Zanuttini (Chair)
Associate Professors Maria Piñango, Kenneth Pugh (Adjunct)
Assistant Professors Jason Shaw, Natalie Weber, Jim Wood
Lector Michael Barrett
Lecturer Chelsea Sanker

†A joint appointment with primary affiliation in another department.

Introductory Courses
Courses in this group do not require previous study of linguistics.
* LING 077a, Mapping the Dialects of American English  Jim Wood
We all know that languages have different regional dialects, and American English is no exception. But what are the dialects of American English, and how are they determined? Does every town have its own dialect, or are there broader patterns across larger regions? Are the patterns different for different demographic categories? Are there different dialect regions depending on gender? Race? How do we know where one dialect region stops and another begins? It turns out that there is no one answer to these questions. Moreover, the answers we find depend greatly on what aspect of language we are looking at. This hands-on seminar explores different ways of visualizing how language varies across geographical space, with a focus on dialect variation. Students study recent research discussing new techniques for analyzing geographic patterns of linguistic variation, and apply those techniques to survey data collected in recent years by the Yale Grammatical Diversity Project. Students develop their own mapping projects based on these data, and discover novel ways to visualize and analyze regional dialect variation. The course involves an introduction to some basic concepts in linguistics, as well as an introduction to Geographic Information Systems (GIS) software.  SO

* LING 109b / ENGL 149b, History of the English Language  Alexandra Reider
The evolution of English from its beginnings nearly 1500 years ago to the language of *Beowulf*, Chaucer, Shakespeare, Milton, Jane Austen, Melville, Twain, Langston Hughes, Woody Allen, Maya Angelou, and Cardi B. An overview of the 'Englishes' that populate our globe, including a look at the ways that technology affects language.  HU

LING 110a, Language: Introduction to Linguistics  Jason Shaw
The goals and methods of linguistics. Basic concepts in phonology, morphology, syntax, and semantics. Techniques of linguistic analysis and construction of linguistic models. Trends in modern linguistics. The relation of linguistics to psychology, logic, and other disciplines.  SO

LING 112b, Historical Linguistics  Chelsea Sanker
Introduction to language change and language history. Types of change that a language undergoes over time: sound change, analogy, syntactic and semantic change, borrowing. Techniques for recovering earlier linguistic stages: philology, internal reconstruction, the comparative method. The role of language contact in language change. Evidence from language in prehistory.  HU

* LING 115a / SKRT 110a, Introductory Sanskrit I  Aleksandar Uskokov
An introduction to Sanskrit language and grammar. Focus on learning to read and translate basic Sanskrit sentences in Devanagari script. No prior background in Sanskrit assumed.  L1  1½ Course cr

LING 116b / CGSC 216b / PSYC 116b, Cognitive Science of Language  Robert Frank
The study of language from the perspective of cognitive science. Exploration of mental structures that underlie the human ability to learn and process language, drawing on studies of normal and atypical language development and processing, brain imaging, neuropsychology, and computational modeling. Innate linguistic structure vs. determination by experience and culture; the relation between linguistic and nonlinguistic cognition in the domains of decision making, social cognition, and musical cognition; the degree to which language shapes perceptions of color, number, space, and gender.  SO

LING 125b / SKRT 120b, Introductory Sanskrit II  Aleksandar Uskokov
Continuation of SKRT 110. Focus on the basics of Sanskrit grammar; readings from classical Sanskrit texts written in Devanagari script. After SKRT 110.  L2  1½ Course cr

LING 138a / SKRT 130a, Intermediate Sanskrit I  Aleksandar Uskokov
The first half of a two-term sequence aimed at helping students develop the skills necessary to read texts written in Sanskrit. Readings include selections from the *Hitopadesa*, *Kathasaritsagara*, *Mahabharata*, and *Bhagavadgita*. After SKRT 120 or equivalent.  L3

LING 146b / PSYC 329b, Language and Gender  Natalie Weber and Claire Bowern
An introduction to linguistics through the lens of gender. Topics include: gender as constructed through language; language variation as conditioned by gender and sexuality within and between languages across the world; real and perceived differences between male and female speech; language and (non)binarity; gender and noun class systems in language; pronouns and identity; role of language in encoding, reflecting, or reinforcing social attitudes and behavior.  SO

LING 148b / SKRT 140b, Intermediate Sanskrit II  Aleksandar Uskokov
Continuation of SKRT 130, focusing on Sanskrit literature from the *kavya* genre. Readings include selections from the *Jatakamala* of Aryasura and the opening verses of Kalidasa’s *Kumarasambhava*. After SKRT 130 or equivalent.  L4

* LING 150a / ENGL 150a, Old English  Alexandra Reider
An introduction to the language, literature, and culture of earliest England. A selection of prose and verse, including riddles, heroic poetry, meditations on loss, a dream vision, and excerpts from *Beowulf*, which are read in the original Old English.  HU

American Sign Language Courses

ASL 110a, American Sign Language I  Michael Barrett
An introduction to American Sign Language (ASL), with emphasis on vocabulary, ASL grammar, Deaf Culture and Conversational skills. Use of visual material (DVD), communicative activities, grammar drills, classifiers and Deaf Culture study. ASL 120 is not required to earn credit for ASL 110.  L1  1½ Course cr
**ASL 120b, American Sign Language II**  Michael Barrett  
A continuation to American Sign Language (ASL) I, with emphasis on ASL grammar, expressive and receptive skills in storytelling and dialogues. Use of visual materials (DVD), grammar drills, proper use of non-manual markers and body language. Emphasis on character development, role shifting and story cohesion. Prerequisite: ASL 110.  1½ Course cr

* **ASL 130a, American Sign Language III**  Michael Barrett  
Building on ASL 120, this course covers in depth the structure of ASL grammar, fingerspelling, narratives, and visual communication. Students develop expressive and receptive skills in storytelling and dialogue. Prerequisites: ASL 120 or a placement evaluation by professor.  1½ Course cr

* **ASL 140b, American Sign Language IV**  Michael Barrett  
Building on ASL 130, this course increases the emphasis on more abstract and challenging conversational and narrative range; cultural values and behavioral rules of the deaf community in the U.S; receptive and expressive activities, including vocabulary, grammatical structures, and aspects of the Deaf Culture in debate format. Prerequisite: ASL 130; or as evaluated by professor.  1½ Course cr

### Intermediate Courses

Some courses in this group have prerequisites; others do not, and may be taken as a student’s first course in linguistics.

* **LING 202a, The Mystery of the Voynich Manuscript**  Claire Bowern  
Introduction to basic ideas of linguistics and cryptography through the study of the Voynich Manuscript (MS 408), a mysterious medieval manuscript held in the Beinecke Library. Review of major hypotheses about the manuscript, ranging from the fake, to code, to undeciphered language.  SO

* **LING 211b, Grammatical Diversity in U.S. English**  Raffaella Zanuttini  
Language as a system of mental rules, governing the sound, form, and meaning system. The (impossible) distinction between language and dialect. The scientific study of standard and non-standard varieties. Social attitudes toward prestige and other varieties; linguistic prejudice. Focus on morpho-syntactic variation in North-American English: alternative passives (“The car needs washed”), personal datives (“I need me a new printer”), negative inversion (“Don’t nobody want to ride the bus”), “drama SO” (“I am SO not going to study tonight”).  SO

* **LING 212a, Linguistic Change**  Claire Bowern  
How languages change, how we study change, and how language relates to other areas of society. This seminar is taught through readings chosen by instructor and students, on topics of interest. Prerequisite: LING 112 or equivalent.  SO

**LING 217a / EDST 237a / PSYC 317a, Language and Mind**  Maria Pinango  
The structure of linguistic knowledge and how it is used during communication. The principles that guide the acquisition of this system by children learning their first language, by children learning language in unusual circumstances (heritage speakers, sign languages) and adults learning a second language, bilingual speakers. The processing of language in real-time. Psychological traits that impact language learning and language use.  SO  RP

* **LING 222a, Phonology I**  Natalie Weber  
Why do languages sound distinct from one another? Partly it is because different languages use different sets of sounds (in spoken languages) or signs (in signed languages) from one another. But it is also because those sounds and signs have different distributional patterns in each language. Phonology is the study of the systematic organization and patterning of sounds and signs. Students learn to describe the production of sounds and signs (articulatory phonetics), discuss restrictions on sound and sign distribution (morphemic alternation, phonotactics), and develop a model of the phonological grammar in terms of rules and representations. Throughout the course, we utilize datasets taken from a variety of the world's languages.  SO  RP

* **LING 234a, Quantitative Linguistics**  Chelsea Sanker  
This course introduces quantitative methods in linguistics, which are an increasingly integral part of linguistic research. The course provides students with the skills necessary to organize, analyze, and visualize linguistic data using R, and explains the concepts underlying these methods, which set a foundation that positions students to also identify and apply new quantitative methods, beyond the ones covered in this course, in their future projects. Course concepts are framed around existing linguistic research, to help students use these methods when designing future research projects and critically evaluating quantitative methods in the academic literature. Assignments and in-class activities are a combination of hands-on practice with quantitative tools and discussion of analyses used in published academic work.  SO

* **LING 235b, Phonology II**  Natalie Weber  
Topics in the architecture of a theory of sound structure. Motivations for replacing a system of ordered rules with a system of ranked constraints. Optimality theory: universals, violability, constraint types and their interactions. Interaction of phonology and morphology, as well as the relationship of phonological theory to language acquisition and learnability. Opacity, lexical phonology, and serial versions of optimality theory. Prerequisite: LING 232 or permission of instructor.  SO  RP

* **LING 236a, Articulatory Phonology**  Jason Shaw  
Study of experimental methods to record articulatory movements using electromagnetic articulography and/or ultrasound technologies and analytical approaches for relating articulatory movements to phonological structure. Hands-on training in laboratory techniques
are paired with discussion of related experimental and theoretical research. Prerequisites: LING 220 and LING 232 or permission of instructor.

* LING 241b, Field Methods  Chelsea Sanker
Principles of phonetics, phonology, morphology, syntax, and semantics applied to the collection and interpretation of novel linguistic data. Data are collected and analyzed by the class as a group, working directly with a speaker of a relatively undocuments language. Open to majors and graduate students in Linguistics, and to others with permission of instructor. Students should have taken LING 232 or LING 220 and one other linguistics class.

LING 253a, Syntax I  Raffaella Zanuttini
If you knew all the words of a language, would you be able to speak that language? No, because you'd still need to know how to put the words together to form all and only the grammatical sentences of that language. This course focuses on the principles of our mental grammar that determine how words are put together to form sentences. Some of these principles are shared by all languages, some differ from language to language. The interplay of the principles that are shared and those that are distinct allows us to understand how languages can be very similar and yet also very different at the same time. This course is mainly an introduction to syntactic theory: it introduces the questions that the field asks, the methodology it employs, some of the main generalizations that have been drawn and results that have been achieved. Secondarily, this course is also an introduction to scientific theorizing: what it means to construct a scientific theory, how to test it, and how to choose among competing theories.

LING 254b, Syntax II  Jim Wood
This course continues the development of the "principles and parameters" approach to grammatical theory in Government-Binding theory and the Minimalist Program. We begin with a brief review of the architecture of syntactic theory, move on to an extended exploration of the mechanisms of dependency formation in syntax (including displacement, agreement, control, scope and anaphora), and conclude with a discussion of the nature of syntactic representation (constituency in double object constructions, the mapping between structure and thematic relations, the role of functional categories). Throughout, a major goal of the course is to engage in foundational issues by reading primary literature in syntax and applying theoretical concepts to novel data. Prerequisite: LING 253.

LING 263a, Semantics I  Venketa Dayal
Introduction to truth-conditional compositional semantics. Set theory, first- and higher-order logic, and the lambda calculus as they relate to the study of natural language meaning. Some attention to analyzing the meanings of tense/aspect markers, adverbs, and modals. Q8, SO

* LING 266b, Cognitive Foundations of Meaning Change  Maria Pinango
Linguistic, cognitive, and communicative structure explored through phenomena involving systematic semantic change. Why evolution in the meanings of forms follows what seem to be constrained trajectorial paths. Are such semantic change derivable from the organizational properties of the human cognitive system or the dynamics of rational communication? Prerequisite or corequisite: One from LING 112, 231, 263, 275, or 361 or permission of instructor.

LING 271b / PHIL 271b, Philosophy of Language  Jason Stanley
An introduction to contemporary philosophy of language, organized around four broad topics: meaning, reference, context, and communication. Introduction to the use of logical notation. HU

LING 275b / CGSC 275 / PHIL 280, Pragmatics  Laurence Horn
Speakers often mean things they don't say, but how does a hearer figure out what the speaker meant? Which sentences are designed to change the world rather than just to represent it? How are sentences used to mean different things in different contexts? Pragmatics explores the relations between what is said and what is meant, focusing on how speech acts and the principles of "street logic"—presuppositions and implicatures—help speakers and hearers shape the landscape of a conversation. No formal prerequisites, but some familiarity with linguistics or philosophy of language will help on some of the readings.

Advanced Courses and Seminars

* LING 372a, Meaning, Concepts, and Words  Maria Pinango
A cognitive approach to the structure of meaning from the perspective of the language system. The brain's finite collection of stored concepts, which are combined and recombined via predetermined principles. The system of associating combinations of concepts with combinations of words and sentences to produce an unlimited number of novel thoughts. Prerequisite: at least one course in linguistics, psychology, or cognitive science.

* LING 380b, Topics in Computational Linguistics: Neural Network Models of Linguistic Structure  Robert Frank
An introduction to the computational methods associated with "deep learning" (neural network architectures, learning algorithms, network analysis). The application of such methods to the learning of linguistic patterns in the domains of syntax, phonology, and semantics. Exploration of hybrid architectures that incorporate linguistic representation into neural network learning. Prerequisites: Python programming, basic calculus and linear algebra, introduction to linguistic theory (LING 106, 110, 116, 217 or equivalent). Q8, SO
* LING 381a / LING 379 / LING 781a, Argument Structure and Morphology  Jim Wood
The intersection of argument structure and morphology. We study the ways that different argument structure configurations are reflected in the morphological shape of verbs (passives, causatives, reflexives, etc.), and how argument structure interacts with derivation, especially nouns and adjectives formed from verbs. Prerequisite: LING 253 or permission of the instructor.  WR, SO

Research Courses and Senior Essay

* LING 490a / PSYC 372a, Research Methods in Linguistics  Raffaella Zanuttini
Development of skills in linguistics research, writing, and presentation. Choosing a research area, identifying good research questions, developing hypotheses, and presenting ideas clearly and effectively, both orally and in writing; methodological issues; the balance between building on existing literature and making a novel contribution. Prepares for the writing of the senior essay.

* LING 491b, The Senior Essay  Jim Wood
Research and writing of the senior essay under the guidance of a faculty adviser. Students present research related to their essays in a weekly colloquium. Prerequisite: LING 490.

Related Courses

ANTH 205a, Language, Culture, and Identity  J. Joseph Errington
Introduction to the role of language in the constitution of gendered, class, ethnic, and national identities. Ethnographic and linguistic case studies are combined with theoretical and comparative approaches. Enrollment limited to 40.  SO

* ANTH 309a, Language and Culture  Paul Kockelman
The relations between language, culture, and cognition. What meaning is and why it matters. Readings in recent and classic works by anthropologists, linguists, psychologists, and philosophers.  SO

* ANTH 413a, Language, Culture, and Ideology  J. Joseph Errington
Review of influential anthropological theories of culture, with reference to theories of language that inspired or informed them. American and European structuralism; cognitivist and interpretivist approaches to cultural description; the work of Bakhtin, Bourdieu, and various critical theorists.  SO RP

* CHLD 128b / EDST 128b / PSYC 128b, Language, Literacy, and Play  Nancy Close and Carla Horwitz
The course focuses on the complicated role play has in the development of language and literacy skills among preschool and kindergarten-aged children. It examines how teachers integrate language, literacy, and play in a developmentally appropriate early childhood education curriculum. Topics include social-emotional, cross-cultural, cognitive, and communicative aspects of play.  WR, SO RP

CPSC 470b, Artificial Intelligence  Stephen Slade
Introduction to artificial intelligence research, focusing on reasoning and perception. Topics include knowledge representation, predicate calculus, temporal reasoning, vision, robotics, planning, and learning. After CPSC 201 and 202.  QR

CPSC 472a, Intelligent Robotics  Brian Scassellati
Introduction to the construction of intelligent, autonomous systems. Sensory-motor coordination and task-based perception. Implementation techniques for behavior selection and arbitration, including behavior-based design, evolutionary design, dynamical systems, and hybrid deliberative-reactive systems. Situated learning and adaptive behavior. After CPSC 201 and 202 or equivalents. May not be taken after CPSC 473.  QR

CPSC 477b, Natural Language Processing  Dragomir Radev
Linguistic, mathematical, and computational fundamentals of natural language processing (NLP). Topics include part of speech tagging, Hidden Markov models, syntax and parsing, lexical semantics, compositional semantics, machine translation, text classification, discourse, and dialogue processing. Additional topics such as sentiment analysis, text generation, and deep learning for NLP. Prerequisites: CPSC 202 and CPSC 223, or permission of instructor.  QR

LATN 110a, Beginning Latin: The Elements of Latin Grammar  Staff
Introduction to Latin. Emphasis on morphology and syntax within a structured program of readings and exercises. Prepares for LATN 120. No prior knowledge of Latin assumed. Preregistration, which is required, takes place at the Academic Fair. See the Calendar for the Opening Days or the departmental Web site for details about preregistration.  L1 RP 1¼ Course cr

* LATN 390b, Latin Syntax and Stylistics  Joseph Solodow
A systematic review of syntax and an introduction to Latin style. Selections from Latin prose authors are read and analyzed, and students compose short pieces of Latin prose. For students with some experience reading Latin literature who desire a better foundation in forms, syntax, idiom, and style.  L5, HU

PHIL 115a, First-Order Logic  Kenneth Winkler
An introduction to formal logic. Study of the formal deductive systems and semantics for both propositional and predicate logic. Some discussion of metatheory.  QR
PHIL 267b, Mathematical Logic  Sun-Joo Shin
An introduction to the metatheory of first-order logic, up to and including the completeness theorem for the first-order calculus. Introduction to the basic concepts of set theory. Prerequisite: PHIL 115 or permission of instructor.  QR

* PHIL 427b, Computability and Logic  Sun-Joo Shin
A technical exposition of Gödel’s first and second incompleteness theorems and of some of their consequences in proof theory and model theory, such as Löb’s theorem, Tarski’s undefinability of truth, provability logic, and nonstandard models of arithmetic. Prerequisite: PHIL 267 or permission of instructor.  QR, HU