Cognitive Science

Department Website: https://voices.uchicago.edu/cognitivescience (https://voices.uchicago.edu/cognitivescience/)

Program of Study

Cognitive science explores the nature of cognitive processes such as perception, reasoning, memory, attention, language, decision making, emotion, motor control, and problem solving. The goal of cognitive science, stated simply, is to understand how minds work, in humans, animals, and machines. Cognitive science emerged in the latter part of the 20th century at the intersection of computer science, linguistics, neuroscience, philosophy, and psychology, and is an inherently interdisciplinary endeavor, drawing on tools and ideas from the social sciences, the physical and biological sciences, and the humanities. Topics of research include (but are not limited to) cognitive development, cognitive processing, judgment and decision making, language and communication, the neurological bases of cognition, perception, and memory, philosophy of mind, and artificial intelligence. A defining feature of cognitive science is its emphasis on integration among fields, for a truly interdisciplinary study of the mind. Students will be trained in formal methods of analysis and modeling that are common in majors in the physical and biological sciences, but often absent from majors in the humanities and social sciences; at the same time, students will also be trained in the advanced reasoning skills that define humanistic inquiry, but are often absent from more technical or applied majors.

The undergraduate major in Cognitive Science at the University of Chicago is designed to embody this interdisciplinary approach to the study of the mind and brain. Students gain broad knowledge of the field by taking courses in each of the five main disciplinary areas—computer science, linguistics, philosophy, psychology, and neuroscience—and then develop further focus and depth of understanding by taking additional courses in two of these disciplinary areas. Students will form key technical foundations through a Formal Foundations requirement, and will gain critical training in integrating interdisciplinary perspectives through the two core foundational courses: COGS 20001 Mind, Brain and Meaning and COGS 20002 Cognitive Models. A distinguishing feature of the Cognitive Science major at the University of Chicago is the centrality of the humanistic component of the study of the mind: Starting immediately with the foundational course sequence, questions about what it *means* to learn, communicate, and think will be assigned equal significance to, and asked alongside, questions about what it *is* to learn, communicate, and think. Training emphasizes both engagement with the principal theories of mind and the evidence that bears on choices between them, and development of the conceptual and practical skills needed for understanding and conducting theoretical and empirical work in the field.

Students who are majoring in Cognitive Science are encouraged to visit the Cognitive Science program homepage at voices.uchicago.edu/cognitivescience (https://voices.uchicago.edu/cognitivescience/) to learn about events and resources on and off campus and for links to information on employment opportunities.

Program Learning Goals

The interdisciplinary nature inherent to cognitive science requires students to develop a wide array of skills and knowledge that span multiple fields across the social sciences, natural sciences, and humanities. The Cognitive Science curriculum is thus designed such that students who complete all program requirements will have achieved the following learning goals:

1. Acquire and be able to communicate the foundational knowledge, empirical questions, theoretical concepts, and analytical methods of cognitive science
2. Acquire and demonstrate proficiency with the analytical methods of cognitive science, in particular the computational modeling techniques that are standard in the discipline
3. Achieve depth of knowledge in two of the core subfields of cognitive science (computer science, linguistics, neuroscience, philosophy, psychology), including advanced understandings of theories, methods, and research approaches
4. Explore and become familiarized with perspectives outside of the core subfields to gain a richer understanding of the history of thought on the nature of the mind
5. Combine lessons and knowledge gained from individual requirements of the major into a cohesive course plan centered around a theme of cognitive science

Program Requirements

Students who complete a major in Cognitive Science will receive the degree of bachelor of arts. To qualify for the BA, students must take an additional 15 courses outside of the general requirements of The Curriculum. Courses in the major fall into four categories:

1. **Introductory Courses**, which engage students with the core questions, intellectual history, and analytical methods that unify cognitive scientific research. The two required Introductory Courses are COGS 20001 Mind, Brain and Meaning and COGS 20002 Cognitive Models. (200 units)
2. **Formal Foundations Courses**, which give students the analytical tools to explore different strands of contemporary cognitive scientific research. (200 units)

3. **Disciplinary Courses**, which provide breadth and depth in the five core disciplines (computer science, linguistics, neuroscience, philosophy, and psychology). Students are required to take one approved course in each of the five core disciplines and two additional courses in two of the core disciplines. (900 units)
   - **Breadth courses** provide breadth in the core disciplines of cognitive science and insights into their methods, practices, and theories. (500 units)
   - **Depth courses** provide additional depth into a core discipline through exposure to more specific topics within that core discipline. (400 units)
4. **Extra-Disciplinary Courses**, which engage students with cognitive scientific work in areas beyond the core disciplines, including anthropology, economics, music, political science, and religion, to expose students to the full breadth of the interdisciplinary study of the mind. (200 units)

Note that some courses may be used to satisfy different requirements, but no single course may be "double-counted" towards satisfaction of two requirements. For example, a student who takes PHIL 20100 Introduction to Logic may count it either towards satisfaction of the Formal Foundations requirement or towards satisfaction of the Philosophy Core Discipline requirement, but not both.

Introductory Courses

There are two introductory courses in the Cognitive Science major, COGS 20001 Mind, Brain and Meaning and COGS 20002 Cognitive Models, which serve two purposes. First, they introduce students to the empirical questions, theoretical concepts, and analytical methodologies that led to the emergence of cognitive science as a distinct field of study and continue to drive contemporary research. Second, they will highlight the ways that these issues manifest in the core disciplines of cognitive science—computer science, linguistics, neuroscience, philosophy, and psychology—and the ways that progress on central questions about the nature of the mind have been informed by interactions, conversations, and collaborations across the disciplines. Ideally, both courses will normally be co-taught by faculty from different fields, with the dual goal of providing substantive disciplinary expertise in more than one area, and of manifesting, in the classroom, the kind of interdisciplinarity that defines the field.

Formal Foundations Courses

The Cognitive Science major requires students to develop expertise in the formal analytical methods used in the field. The specific formal skills that will be most useful to individual students depend on their particular areas of interest, so students are free to select any two courses from an approved set of options from a range of courses in mathematics, computer science, statistics, and logic. Though not formally required, experience with the equivalent of one course in calculus is highly recommended, as expertise in this area is required for many of the Core Discipline courses. (NOTE: Calculus I-II may be used to satisfy the Formal Foundations requirement only if the courses are not used to satisfy the general education requirement in the mathematical sciences.)

The following list provides examples of courses that could be used to satisfy the Formal Foundations requirement, but it is meant to be illustrative only and is not exhaustive. Students may petition for approval of a course not on this list as satisfaction of the Formal Foundations requirement by submitting a proposal and rationale to the Director of the Cognitive Science Program.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

Formal Foundations Courses

BIOS 20151	Introduction to Quantitative Modeling in Biology	100
BIOS 20152	Introduction to Quantitative Modeling in Biology (Advanced)	100
BIOS 20172	Mathematical Modeling for Pre-Med Students	100
BIOS 20236	Biological Dynamics	100
CHDV 39301	Qualitative Research Methods	100
DATA 11800	Introduction to Data Science I	100
DATA 11900	Introduction to Data Science II	100
CMSC 14100	Introduction to Computer Science I	100
CMSC 14200	Introduction to Computer Science II	100
CMSC 14300	Systems Programming I	100
CMSC 14400	Systems Programming II	100
CMSC 25300	Mathematical Foundations of Machine Learning	100
CMSC 27100	Discrete Mathematics	100
DATA 21100	Mathematical Methods for Data Science I	100
DATA 22700	Data Visualization and Communication	100
ECON 10700	Introductory Game Theory	100
ECON 11020	Introduction to Econometrics	100

LING 21020	Formal Foundations of Linguistics	100
LING 22500	Quantitative Research Methods in Linguistics	100
LING 36601	Intro to Python and R for Linguists	100
MACS 20500	Computing for the Social Sciences	100
MATH 13100	Elem Functions and Calculus I (or higher)	100
MATH 13200	Elem Functions and Calculus II (or higher)	100
MATH 13300	Elementary Functions and Calculus III	100
MATH 15100	Calculus I	100
MATH 15200	Calculus II	100
MATH 15250	Mathematical Methods for Economic Analysis	100
MATH 15300	Calculus III	100
MATH 16100	Honors Calculus I	100
MATH 16110	Honors Calculus I (IBL)	100
MATH 16200	Honors Calculus II	100
MATH 16210	Honors Calculus II (IBL)	100
MATH 16300	Honors Calculus III	100
MATH 16310	Honors Calculus III (IBL)	100
MATH 18300	Mathematical Methods in the Physical Sciences I	100
MATH 18400	Mathematical Methods in the Physical Sciences II	100
MATH 19620	Linear Algebra	100
MATH 20250	Abstract Linear Algebra	100
MATH 27700	Mathematical Logic I	100
MATH 28000	Introduction to Formal Languages	100
NSCI 21820	Introduction to Python for Biologists & Neuroscientists	100
PHIL 20012	Accelerated Introduction to Logic	100
PHIL 20100	Introduction to Logic	100
PLSC 21200	Learning From Data	100
PSYC 20200	Psychological Research Methods	100
PSYC 20250	Introduction to Statistical Concepts and Methods	100
SOSC 20112	Introductory Statistical Methods and Applications for the Social Sciences	100
STAT 22000	Statistical Methods and Applications	100
STAT 23400	Statistical Models and Methods	100
STAT 24300	Numerical Linear Algebra	100
STAT 24400	Statistical Theory and Methods I	100
STAT 24500	Statistical Theory and Methods II	100
STAT 27410	Introduction to Bayesian Data Analysis	100

Core Discipline Courses

The core disciplines of cognitive science are computer science, linguistics, neuroscience, philosophy, and psychology. The Core Discipline requirements are designed to strike a balance between breadth and depth in the core disciplines, while also allowing students a great deal of freedom to construct an individualized plan of study that best matches their interests in cognitive science. Students in the Cognitive Science major must take:

- **Five Core Discipline breadth courses**: one approved course in each of the five core disciplines. Breadth courses provide breadth in the core disciplines of cognitive science and insights into their methods, practices, and theories.
- **Four Core Discipline depth courses**: two additional courses in two of the core disciplines. Depth courses provide additional depth into a core discipline through exposure to more specific topics within that core discipline.

The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/). Students should check the website regularly as it is updated throughout the year.

Note that while **any course listed as a Breadth course may alternatively be used to satisfy Depth requirements**, the reverse does not apply. **Courses listed as Depth may not be used to satisfy Breadth requirements.**

Approved electives from each of the five core disciplines are listed below; students may, in addition, request approval of a course that is not on this list by submitting a proposal and rationale to the Program Coordinator.

Computer Science Breadth courses

All Breadth courses may alternatively be applied toward a Depth requirement within the same Core Discipline.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

CMSC 14100	Introduction to Computer Science I	100
CMSC 14200	Introduction to Computer Science II	100
CMSC 14300	Systems Programming I	100
CMSC 14400	Systems Programming II	100
CMSC 21800	Data Science for Computer Scientists	100
CMSC 25300	Mathematical Foundations of Machine Learning	100
CMSC 25400	Machine Learning	100
CMSC 25500	Introduction to Neural Networks	100
CMSC 25700	Natural Language Processing	100
CMSC 27200	Theory of Algorithms	100
DATA 11800	Introduction to Data Science I	100
DATA 11900	Introduction to Data Science II	100
DATA 12000	Computer Science for Data Science	100
DATA 22100	Introduction to Machine Learning: Concepts and Applications	100
DATA 23100	Machine Learning Fundamentals: Theory and Practice	100
LING 22500	Quantitative Research Methods in Linguistics	100
LING 28620	Computational Linguistics	100

Computer Science Depth courses

Depth courses may not be applied toward a Breadth requirement.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

BIOS 20151	Introduction to Quantitative Modeling in Biology	100
BIOS 20172	Mathematical Modeling for Pre-Med Students	100
CMSC 20600	Introduction to Robotics	100
CMSC 20630	Human-Robot Interaction: Research and Practice	100
CMSC 21400	Creative Machines and Innovative Instrumentation	100
CMSC 23900	Data Visualization	100
CMSC 25025	Machine Learning and Large-Scale Data Analysis	100
CMSC 35900	Topics in Artificial Intelligence	100
DATA 22700	Data Visualization and Communication	100
DATA 23700	Visualization for Data Science	100

Linguistics Breadth courses

All Breadth courses may alternatively be applied toward a Depth requirement within the same Core Discipline.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

LING 20001	Introduction to Linguistics	100
LING 20101	Introduction to Phonetics and Phonology	100
LING 20201	Introduction to Syntax	100
LING 20301	Introduction to Semantics and Pragmatics	100
LING 21000	Morphology	100

LING 27010	Introduction to Psycholinguistics	100
LING 27131	Lexical Semantics	100

Linguistics Depth courses

Depth courses may not be applied toward a Breadth requirement.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

COGS 20100	Climate and Sustainable Development: The Science of Climate Change	100
COGS 22501	Nature and Nurture in Language and Cognition	100
COGS 24001	Prediction in Language Comprehension	100
COGS 25001	Foundations of Neurolinguistics	100
LING 20150	Language and Communication	100
LING 21150	Human Language and Interaction	100
LING 21720	Sociophonetics	100
LING 21730	Perceptual Models of Speech	100
LING 21920	The Evolution of Language	100
LING 22460	Seminar: Phonology	100
LING 22500	Quantitative Research Methods in Linguistics	100
LING 23501	New Perspectives on Language Emergence	100
LING 23701	Crosslinguistic Perspectives on Language Development	100
LING 23920	The Language of Deception and Humor	100
LING 26020	Truth	100
LING 26810	Bilingualism and Heritage Languages	100
LING 28620	Computational Linguistics	100
LING 29404	Multilingualism and Multilingual Education	100

Neuroscience Breadth courses

All Breadth courses may alternatively be applied toward a Depth requirement within the same Core Discipline.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

NSCI 20101	Foundations of Neuroscience	100
NSCI 20111	Cellular Neurophysiology	100
NSCI 20130	Systems Neuroscience	100
NSCI 21015	Biological Psychology	100

Neuroscience Depth courses

Depth courses may not be applied toward a Breadth requirement.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

COGS 25001	Foundations of Neurolinguistics	100
NSCI 20510	Evolution and the Nervous System	100
NSCI 21100	Photons to Consciousness: Cellular and Integrative Brain Functions	100
NSCI 21400	Biological Clocks and Behavior	100
NSCI 21600	Attention and Working Memory in the Mind and Brain	100
NSCI 21620	Structure, Circuits and Development of the Forebrain	100
NSCI 21625	Cognitive Neuroscience in Humans and Rodents	100
NSCI 21630	Spinal Cord and Brainstem Neuroanatomy & Disability	100
NSCI 21750	Ethics through a Neurobiological Lens	100
NSCI 21811	Building the Brain	100
NSCI 21900	Neuropharmacology	100
NSCI 22010	Neuroscience of Consciousness	100

NSCI 22015	Cognitive Psychology	100
NSCI 22130	Psychoactive Drugs, the Brain and Behavior	100
NSCI 22535	The Psychology and Neurobiology of Stress	100
NSCI 22600	Cognition and Overcoming its Limits	100
NSCI 23815	Advanced Topics in Human Neuroimaging	100
NSCI 24000	Modeling and Signal Analysis for Neuroscientists	100
PSYC 22350	Social Neuroscience	100
PSYC 23910	Hormones, Brains, and Behavior	100

Philosophy Breadth courses

All Breadth courses may alternatively be applied toward a Depth requirement within the same Core Discipline.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

PHIL 21114	Philosophy of Logic	100
PHIL 21726	The Mind/Body Problem	100
PHIL 22960	Bayesian Epistemology	100
PHIL 23000	Introduction to Metaphysics and Epistemology	100
PHIL 23501	Philosophy of Mind	100
PHIL 23502	Introduction to the Philosophy of Mind	100
PHIL 23540	Other Minds	100
PHIL 24010	Meaning and Reference	100
PHIL 25716	The Linguistic Turn in Philosophy (Language, Meaning, Being)	100
PHIL 28010	Introduction to Philosophy of Language	100
PHIL 29903	The Philosophy of AI: Induction in the age of Big Data	100
PHIL 29906	The Philosophy of Artificial Intelligence: Mind and Model	100
PHIL 29907	Philosophy of AI: Tools, Technology, and Human Agency	100

Philosophy Depth courses

Depth courses may not be applied toward a Breadth requirement.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

PHIL 20012	Accelerated Introduction to Logic	100
PHIL 20100	Introduction to Logic	100
PHIL 21013	Neo-Aristotelian Moral Philosophy	100
PHIL 21114	Philosophy of Logic	100
PHIL 21218	Being and Goodness: Varieties of Constitutivism	100
PHIL 21420	Introduction to the Problem of Free Will	100
PHIL 21506	Memory and Unity of a Person	100
PHIL 21730	Aristotle's Metaphysics	100
PHIL 22000	Introduction to the Philosophy of Science	100
PHIL 22202	Modern Social Contract Theory	100
PHIL 22277	The Philosophy of Thomas Kuhn	100
PHIL 22602	The Fate of Autonomy	100
PHIL 22961	Social Epistemology	100
PHIL 22965	Feminist Epistemology and Philosophy of Science	100
PHIL 23001	Paradoxes	100
PHIL 23022	Agency and Virtual Reality: A Technophilosophical Exploration	100
PHIL 23027	Philosophy of Animal Minds	100
PHIL 23028	The Philosophy of Human-Animal Relationships	100
PHIL 23401	Philosophy and Science Fiction	100
PHIL 23405	History and Philosophy of Biology	100

PHIL 24096	Philosophy of Economics	100
PHIL 24098	Character and Commerce: Practical Wisdom in Economic Life	100
PHIL 24804	Foucault: Power, Subjectivity, and Normalization	100
PHIL 25000	History of Philosophy I: Ancient Philosophy	100
PHIL 26000	History of Philosophy II: Medieval and Early Modern Philosophy	100
PHIL 26701	Descartes	100
PHIL 28101	Appearance and Reality: Perspectives Across Philosophical Traditions	100
PHIL 29408	Intuitionistic Logic	100

Psychology Breadth courses

All Breadth courses may alternatively be applied toward a Depth requirement within the same Core Discipline.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

PSYC 20300	Biological Psychology	100
PSYC 20400	Cognitive Psychology	100
PSYC 20500	Developmental Psychology	100
PSYC 20700	Sensation and Perception	100
PSYC 23200	Introduction to Language Acquisition	100
PSYC 23820	Attention and Working Memory in the Mind and Brain	100

Psychology Depth courses

Depth courses may not be applied toward a Breadth requirement.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/)..

COGS 24001	Prediction in Language Comprehension	100
COGS 25001	Foundations of Neurolinguistics	100
LING 27010	Introduction to Psycholinguistics	100
PSYC 20600	Social Psychology	100
PSYC 20850	Introduction to Human Development	100
PSYC 21100	Human Development Research Design	100
PSYC 21109	Concepts and Categories	100
PSYC 21116	The Development of Social Cognition	100
PSYC 21510	Neuroscience of Communication	100
PSYC 21750	Biological Clocks and Behavior	100
PSYC 22350	Social Neuroscience	100
PSYC 22620	Cognition and Overcoming its Limits	100
PSYC 22950	Emergence and Development of Mathematics and Language	100
PSYC 23120	Human Language and Interaction	100
PSYC 23660	The Disordered Mind	100
PSYC 23720	Crosslinguistic Perspectives on Language Development	100
PSYC 23860	Beyond Good and Evil: The Psychology of Morality	100
PSYC 23910	Hormones, Brains, and Behavior	100
PSYC 24010	Systems Neuroscience	100
PSYC 25101	The Psychology of Decision Making	100
PSYC 25500	Cognitive and Social Neuroscience of Aging	100
PSYC 25620	How Children Think	100
PSYC 25700	The Psychology of Negotiation	100
PSYC 25880	Computational Social Cognition	100
PSYC 26010	Big Data in the Psychological Sciences	100
PSYC 26780	Emotion and Motivation	100
PSYC 28420	Insight and Creativity	100

PSYC 28962	Principles and Methods of Measurement	100
PSYC 28990	Constructing consciousness: How do we go from matter to mind?	100
PSYC 29120	Human Communication	100
PSYC 30401	Psycholinguistics: Language Processing	100
PSYC 31900	The Neuroscience of Narratives	100
GISC 27102	Spatial and Environmental Cognition	100

Extra-Disciplinary Courses

The Extra-Disciplinary requirement ensures that students also engage with cognitive scientific work outside the core disciplines, in areas such as music, anthropology, religion, economics, and political science, and so are exposed to the full breadth of the interdisciplinary study of the mind. Students in the major must take a total of two Extra-Disciplinary courses.

A partial list of courses that could be used to satisfy the Extra-Disciplinary requirement is provided below; as above, students may also request approval of courses not included in this list, or courses from other fields, by submitting a proposal and rationale to the Director of the Cognitive Science Program.

Students should note that **the list below may not be exhaustive**. The most up-to-date lists of acceptable Breadth and Depth courses for each core discipline can be found on the Cognitive Science Website (https://voices.uchicago.edu/cognitivescience/).

Extra-Disciplinary Courses

MADD 14109	AI at the Archive	100
MUSI 22507	Algorithmic Music Online	100
ECON 25530	Behavioral Development Economics (Undergraduate)	100
BUSN 20710	Behavioral Economics	100
PBPL 28791	Behavioral Science and Public Policy	100
GNSE 23645	Body and the Digital	100
SOCI 28091	Brains, bodies, and culture: An introduction to the sociology of culture	100
HIPS 24240	Buddhism and Science: A Critical Introduction	100
MADD 10929	Cabal, Cult, and Crisis: Religion and Contemporary Conspiracy Theory	100
CHDV 20655	Child and Adolescent Development in Context	100
CHDV 25120	Child Development and Public Policy	100
CHDV 22580	Child Development in the Classroom	100
EDSO 23008	Contemporary Approaches to K-12 Teaching and Learning	100
PSYC 22620	Cognition and Overcoming its Limits	100
CHST 23008	Contemporary Approaches to K-12 Teaching and Learning	100
ASTR 23000	Cosmos and Conscience: Looking for Ourselves Elsewhere	100
CHDV 23700	Crosslinguistic Perspectives on Language Development	100
PSYC 23000	Cultural Psychology	100
RLST 26103	Dreams, Visions, and Mystical Experience	100
CHDV 27950	Evolution and Economics of Human Behavior	100
CHDV 23100	Human Language and Interaction	100
PSYC 23165	Interdisciplinary Perspectives on Morality	100
ANTH 10100	Introduction to Anthropology	100
ANTH 26910	Introduction to Linguistic Anthropology	100
ENGL 12720	Inventing Consciousness: Literature, Philosophy, Psychology	100
NEHC 24567	Islamic Psychology	100
ANTH 24501	Language and Environment	100
ANTH 26700	Language and Technology	100
CHDV 23007	Language, Culture, and Education	100
CLCV 23824	Language, Truth, and Rhetoric	100
LAWS 53542	Law, Mind & Brain	3
CHDV 20703	Literacy, Language, and Education	100
ENGL 10426	Literature vs. AI	100
RLST 27804	Living the Body Through Technology	100
ENGL 10455	Madwomen	100

BUSN 20702	Managerial Decision Making	100
BUSN 20701	Managing in Organizations	100
CMST 26089	Movies and Minds: Scientific Approaches in Cinema Studies	100
CHDV 20774	Multilingualism in Mind & Social Interaction: Language, Self, & Thought in the Multilingual Context	100
MUSI 43720	Music and Affect	100
MUSI 20719	Music and Mind	100
ANTH 24321	Psychological Anthropology	100
CCTS 23300	Religion and Psychiatry	100
ANTH 21355	Remembering: An Anthropological Approach	100
SCPD 11300	Science Communication: Crafting a Science Think Piece **	100
SCPD 11400	Science Communication: Producing a Science Podcast **	100
KNOW 28015	Scientific and Humanistic Contributions to Knowledge Formation	100
HIPS 26021	Sense & Sensibility & Science	100
ENGL 27700	Sensing the Anthropocene	100
CHDV 20510	Sensory Worlds	100
ARTV 27922	Sound / Image Mapping	100
SALC 26075	South Asian Sensoriums	100
GISC 27102	Spatial and Environmental Cognition	100
CMLT 25424	Spiritual Exercises: Giving Form to Thought and Life from Plato to Descartes	100
ECON 20000	The Elements of Economic Analysis I	100
ECON 20010	The Elements of Economic Analysis I Honors	100
ECON 20100	The Elements of Economic Analysis II	100
ECON 20110	The Elements of Economic Analysis II Honors	100
ENGL 19930	The Emotions in Literature, Philosophy, and Psychology	100
RLST 23750	The End of Metaphysics and the Future of Philosophy	100
CHDV 21920	The Evolution of Language	100
ENGL 28103	The Frankfurt School, Cinema, Modernity	100
PLSC 28620	The Intelligible Self	100
LLSO 28091	The Origin and Development of Political Psychology: From Plato to Martha Nussbaum	100
ITAL 23822	The Renaissance of Emotions	100
BUSN 38120	The Study of Behavioral Economics	100
ENGL 24550	The Symbolic in the Age of Computation	100
ANTH 24316	Thinking Psychoanalytically: From the Sciences to the Arts	100
CMSC 35900	Topics in Artificial Intelligence	100
RLST 24055	Understanding Practical Wisdom	100
ITAL 22900	Vico's New Science	100
PARR 21500	What's Up With These Words? (Ideology and Word Meaning)	100
ENGL 25810	Writing Dreams	100
ENGL 12704	Writing Persuasion: Health and Environment	100

** Final project or paper must be related to cognitive science and approved by the program coordinator or faculty director to be counted toward the Extra-Disciplinary requirement.

Summary of Requirements for the BA in Cognitive Science

Introductory courses	200
COGS 20001 Mind, Brain and Meaning	
COGS 20002 Cognitive Models	
Two Formal Foundations Courses	200
Five Core Discipline Breadth courses	500
One Computer Science Breadth course	
One Linguistics Breadth course	
One Neuroscience Breadth course	
One Philosophy Breadth course	

One Psychology Breadth course	
Four Core Discipline Depth courses	400
Two Depth courses from a core discipline	
Two Depth course from a separate core discipline	
Two Extra-Disciplinary courses	200
Total Units	1500

Minor in Cognitive Science

The minor in Cognitive Science consists of six courses (600 units) across the first three categories of the major:

Introductory courses:		200
COGS 20001	Mind, Brain and Meaning	
COGS 20002	Cognitive Models	
One Formal Foundations course †		100
Three courses from three separate Core Disciplines		300
At least two of these courses must be Breadth courses		
Total Units		600

† Students who have taken a course for another program of study that could be counted as a Formal Foundations Course may replace the Formal Foundations requirement with a fourth elective from the set of Disciplinary or Extra-Disciplinary Courses.

Process of Declaring the Major or Minor

College students from any field of study may complete a major or minor in Cognitive Science. Students are encouraged to construct individual programs and should regularly consult with the Program Coordinator and/or the Program Director, as well as their College adviser, about their pathway through the program.

Students should confer with their College adviser, as well as the Cognitive Science Program Coordinator (via the appropriate form (https://voices.uchicago.edu/cognitivescience/advising/)), before declaring a major or minor in Cognitive Science.

Grading

All courses used to satisfy requirements for the major must be taken for quality grades. With consent of the instructor, nonmajors may take COGS courses for P/F grading.

Honors

Students wishing to receive a BA in Cognitive Science with honors must carry out an independent research project that culminates in an honors thesis. To be eligible for consideration of honors status, students must:

- submit a research proposal (no more than three pages) by the end of the fifth week of the third quarter before the student graduates (canonically Autumn Quarter of the fourth year)
- submit the Honors Thesis Advisor Agreement Form (https://voices.uchicago.edu/cognitivescience/files/2023/11/Honors-Thesis-Advisor-Agreement-Form.pdf), with signatures from the student and advisor(s)
- have an overall GPA of 3.25 or above by the time of proposal submission
- have a GPA of 3.5 or above in courses counting towards the Cognitive Science major by the time of proposal submission

Research proposals should explain the project and its significance, and document the student's preparation for the work. Proposals should be approved by the student's thesis advisor(s), and students are required to submit completed Honors Thesis Advisor Agreement Forms as part of their honors applications. Students are strongly encouraged to identify co-advisors from distinct disciplines.

The thesis must be submitted by the fifth week of the quarter in which the student plans to graduate (typically Spring Quarter of the student's fourth year). Theses should be emailed as PDFs to the Program Coordinator, Prof. Melinh Lai (melinh@uchicago.edu), and to the faculty Program Director, Prof. Chris Kennedy (ck@uchicago.edu).

This program may accept an honors thesis or project used to satisfy the same requirement in another major with the consent of both program directors. Students should consult with the relevant program directors by the earliest BA proposal deadline, or by the end of their third year if neither program publishes a deadline. The Petition to Use a Single Bachelor's Paper for Two Majors (https://humanities-web.s3.us-east-2.amazonaws.com/college-prod/s3fs-public/documents/BA_Double_Major_0.pdf) form, to be signed by both program directors,

must be completed and returned to the College adviser by the end of Autumn Quarter of the student's year of graduation.

Cognitive Science Courses

COGS 20001. Mind, Brain and Meaning. 100 Units.
What is the relationship between physical processes in the brain and body and the processes of thought and consciousness that constitute our mental life? Philosophers and others have puzzled over this question for millennia. Many have concluded it to be intractable. In recent decades, the field of cognitive science--encompassing philosophy, psychology, neuroscience, computer science, linguistics, and other disciplines--has proposed a new form of answer. The driving idea is that the interaction of the mental and the physical may be understood via a third level of analysis: that of the computational. This course offers a critical introduction to the elements of this approach, and surveys some of the alternative models and theories that fall within it. Readings are drawn from a range of historical and contemporary sources in philosophy, psychology, linguistics, and computer science. (B) (II)
Instructor(s): Melinh Lai; Zach Lebowski Terms Offered: Autumn Winter
Equivalent Course(s): PSYC 26520, LING 36520, PHIL 26520, LING 26520, COGS 30001, EDSO 30001, SIGN 26520, PHIL 36520, EDSO 20001, PSYC 36520

COGS 20002. Cognitive Models. 100 Units.
A foundational principle of cognitive science is that the workings of cognitive systems--whether biological, mechanical, or digital--can be productively represented by the operation of formal computational models. This course provides a survey of popular modeling frameworks (such as Bayesian rational agents, connectionist networks, dynamical systems, etc.), as well as the cognitive phenomena that these models have been used to simulate. We will discuss the theoretical commitments of these models, assess strengths and weaknesses of each framework for addressing different types of cognitive questions, and analyze the implications of these models' successes and failures for our understanding of the mind.
Instructor(s): Thorburn, Craig Terms Offered: Spring
Equivalent Course(s): LING 20002, PSYC 22002, LING 30002, DATA 20002

COGS 20003. Experimental and Computational Methods in Linguistic Research. 100 Units.
This course introduces students to experimental and computational methods used in linguistic research. Students will gain foundational knowledge of experimental design, stimuli creation, procedure, and data collection and analysis through hands-on practice. Students will design their own research projects, identify appropriate experimental and/or computational methods, and apply them to investigate their questions. Students will learn to use PCIbex (a web-based platform for constructing experiments), R, and Python throughout the process. Familiarity with R/Python/JavaScript is helpful but not required.
Instructor(s): Sanghee Kim Terms Offered: Spring
Prerequisite(s): Mind, Brain, and Meaning (COGS 20001) or Introduction to Linguistics (LING 20001).
Equivalent Course(s): LING 20003

COGS 20004. Measurement and Analysis of the Mind. 100 Units.
This course will introduce students to a selection of empirical methods drawn from a range of disciplines that contribute to cognitive science, including experimental psychology, cognitive neuroscience, linguistic analysis, and artificial intelligence. Students in this course will learn to design scientific experiments and analyze data with inferential statistics, culminating in a final independent project of their own design. Along the way, we will also discuss the philosophies of science invoked when connecting measurements of experimental data to inferences about the underlying nature of cognitive mechanisms, as well as best practices when conducting empirical research.
Instructor(s): Melinh Lai and Sanghee Kim
Equivalent Course(s): LING 20004

COGS 20005. Advanced Cognitive Models. 100 Units.
TBD
Instructor(s): Staff
Equivalent Course(s): LING 20005

COGS 20010. Advanced Cognitive Models. 100 Units.
TBD.
Instructor(s): Staff Terms Offered: Autumn

COGS 20011. Bayesian Modeling in Language and Cognition. 100 Units.
TBD.
Instructor(s): Staff Terms Offered: Autumn

COGS 20027. Quantitative Research Methods in Linguistics. 100 Units.
This course provides an introduction to how quantitative methods are used in the analysis of linguistic data. This will include a foundation in statistical methods that can be applied to experimental and psycholinguistic data, including probability theory, hypothesis testing, regression models and the use of Bayesian statistics. Further topics will include a brief introduction to the use of basic machine learning algorithms in linguistic research and techniques that can be used in the analysis of large linguistic datasets. The class will be grounded in case studies from a variety of subfields of linguistics and provide hands-on examples through a guided introduction

to programming. This class is intended for students who are interested in jump-starting a path into linguistic data science and is designed to be accessible to those with no experience in data science or programming.
Instructor(s): Craig Thorburn Terms Offered: Autumn
Equivalent Course(s): LING 22500, DATA 20027, LING 32500

COGS 21501. Programming for Linguists. 100 Units.
TBD.
Instructor(s): Thorburn, Craig Terms Offered: Autumn
Equivalent Course(s): LING 26602, LING 36602

COGS 22000. Introduction to Linguistics. 100 Units.
This course offers a brief survey of how linguists analyze the structure and the use of language. Looking at the structure of language means understanding what phonemes, words, and sentences are, and how each language establishes principles for the combinations of these things and for their use; looking at the use of language means understanding the ways in which individuals and groups use language to declare their social identities and the ways in which languages can change over time. The overarching theme is understanding what varieties of language structure and use are found across the world's languages and cultures, and what limitations on this variety exist.
Instructor(s): 2022-2023: Erik Zyman (Autumn), Jacob Phillips (Winter), Laura Stigliano (Spring) 2023-2024: Lenore Grenoble (Autumn), Staff (Winter and Spring) Terms Offered: Autumn Spring Winter
Equivalent Course(s): LING 20001

COGS 22001. Introduction to Phonetics and Phonology. 100 Units.
This course is an introduction to the study of speech sounds and their patterning in the world's languages. The first half of the course focuses on how speech sounds are described with respect to their articulatory, acoustic, and perceptual structures. There are lab exercises both in phonetic transcription and in the acoustic analysis of speech sounds. The second half focuses on fundamental notions that have always been central to phonological analysis and that transcend differences between theoretical approaches: contrast, neutralization, natural classes, distinctive features, and basic phonological processes (e.g., assimilation).
Instructor(s): 2022-2023: Jason Riggle (Spring) 2023-2024: Jason Riggle (Autumn) Terms Offered: Spring
Prerequisite(s): LING 20001
Equivalent Course(s): LING 20101

COGS 22002. Language and Communication. 100 Units.
This course can also be taken by students who are not majoring in Linguistics but are interested in learning something about the uniqueness of human language, spoken or signed. It covers a selection from the following topics: What is the position of spoken language in the usually multimodal forms of communication among humans? In what ways does spoken language differ from signed language? What features make spoken and signed language linguistic? What features distinguish linguistic means of communication from animal communication? How do humans communicate with animals? From an evolutionary point of view, how can we account for the fact that spoken language is the dominant mode of communication in all human communities around the world? Why cannot animals really communicate linguistically? What do the terms language "acquisition" and "transmission" really mean? What factors account for differences between "language acquisition" by children and by adults? Are children really perfect language learners? What factors bring about language evolution, including language speciation and the emergence of new language varieties? How did language evolve in mankind? This is a general education course without any prerequisites. It provides a necessary foundation to those working on language at the graduate and undergraduate levels.
Instructor(s): Salikoko Mufwene Terms Offered: Autumn
Equivalent Course(s): LING 20150, EDSO 30150, CHDV 30150, CHDV 20150, LING 30150, EDSO 20150

COGS 22003. Introduction to Syntax. 100 Units.
This course is an introduction to basic goals and methods of current syntactic theory through a detailed analysis of a range of phenomena, with emphasis on argumentation and empirical justification. Major topics include phrase structure and constituency, selection and subcategorization, argument structure, case, voice, expletives, and raising and control structures.
Instructor(s): Si Kai Lee Terms Offered: Winter
Prerequisite(s): LING 20001
Equivalent Course(s): LING 20201

COGS 22004. Introduction to Semantics and Pragmatics. 100 Units.
This course familiarizes students with what it means to study meaning and use in natural language. By "meaning" we refer to the (for the most part, logical) content of words, constituents, and sentences (semantics), and by "use" we intend to capture how this content is implemented in discourse and what kinds of additional dimensions of meaning may then arise (pragmatics). Some of the core empirical phenomena that have to do with meaning are introduced: lexical (i.e., word) meaning, reference, quantification, logical inferencing, presupposition, implicature, context sensitivity, cross-linguistic variation, speech acts. Main course goals are not only to familiarize students with the basic topics in semantics and pragmatics but also to help them develop basic skills in semantic analysis and argumentation.
Instructor(s): Lucas Fagen Terms Offered: Spring
Prerequisite(s): LING 20001

Equivalent Course(s): COGS 32004, LING 30310, LING 20301

COGS 22005. Morphology. 100 Units.
Why is the plural of child in English children and not *childs? Why is undoable ambiguous ((i) 'unable to be done', (ii) 'able to be undone'), while unkillable isn't (only 'unable to be killed')? Unhappier is intuitively composed of several, smaller pieces: un-, happy, and -er; but what about unkempt? These questions are the purview of MORPHOLOGY, the field of linguistics devoted to studying the internal structure of words and how they are formed. Consequently, in this course we will investigate the nature of morphemes, in all their cross-linguistic shapes and guises. Key concepts which will frame our discussion include inflection, syncretism, allomorphy, and blocking. The only prerequisite for this course is LING 20001: Introduction to Linguistics.
Instructor(s): Kutay Serova Terms Offered: Spring
Prerequisite(s): LING 20001
Equivalent Course(s): LING 21000

COGS 22006. Sociophonetics. 100 Units.
Variation is a ubiquitous feature of speech, yet much of the variation observed is non-random. This class will examine this type of structured heterogeneity (Weinreich et al., 1968) from the point of view of sociophonetics. We will focus on the interrelationships between phonetic/phonological form and social factors such as speaking style and the background of the speaker, with a particular interest in explaining the origins and transmission of linguistic change. Our goals will be to (a) acquire the phonetic and phonological foundation necessary to conduct sociophonetic research through practical exercises; (b) survey new sociolinguistic research that addresses issues in phonetic and phonological theories and (c) locate and explain phonetic variation in its social context while drawing on current approaches to the relationship between language and society.
Instructor(s): Melissa Baese-Berk Terms Offered: Winter
Equivalent Course(s): CHST 21720, LING 21720, LING 31720

COGS 22007. The Evolution of Language. 100 Units.
This course is designed to review critically some of the literature on the phylogenetic emergence of Language, in order to determine which questions have been central to the subject matter, which ones have recurred the most, and to what extent the answers to these are now better informed. The class will also review new questions such as the following: What is the probable time of the emergence of modern language(s)? Should we speak of the emergence of Language or of languages, in the plural?
Instructor(s): Salikoko Mufwene Terms Offered: Winter
Equivalent Course(s): LING 21920, PSYC 41920, CHSS 41920, EVOL 41920, LING 41920, CHDV 21920, ANTH 47305, CHDV 41920

COGS 22009. Crosslinguistic Perspectives on Language Development. 100 Units.
This discussion-based course covers cross-linguistic evidence concerning similarities and dissimilarities in how children learn language across diverse language communities. Each year will revolve around a central topic. This year we will focus on the acquisition of phonology.
Instructor(s): M. Tice Terms Offered: Autumn
Equivalent Course(s): LING 23701, PSYC 33720, PSYC 23720, CHDV 33700, CHDV 23700, LING 33700

COGS 22010. The Language of Deception and Humor. 100 Units.
In this course we will examine the language of deception and humor from a variety of perspectives: historical, developmental, neurological, and cross-cultural and in a variety of contexts: fiction, advertising, politics, courtship, and everyday conversation. We will focus on the (linguistic) knowledge and skills that underlie the use of humor and deception and on what sorts of things they are used to communicate.
Instructor(s): Jason Riggle Terms Offered: Winter
Equivalent Course(s): LING 33920, SIGN 26030, LING 23920

COGS 22011. Bilingualism and Heritage Languages. 100 Units.
TBD.
Instructor(s): Anastasia Giannakidou, Zoe Gavriilidou Terms Offered: Autumn
Equivalent Course(s): LING 36810, LING 26810

COGS 22013. Introduction to Psycholinguistics. 100 Units.
This is a survey course in the psychology of language. We will focus on issues related to language comprehension, language production, and language acquisition. The course will also train students on how to read primary literature and conduct original research studies.
Instructor(s): Lai, Melinh (Spring) Terms Offered: Autumn Spring
Equivalent Course(s): PSYC 27010, LING 37010, COGS 32013, LING 27010

COGS 22014. Lexical Semantics. 100 Units.
You can nail a postcard to the wall with a dart but you can't microwave it with anything other than a microwave. This seems not to be a fact about nails and microwaves, but rather about English verbs that are derived from nouns. Is it a random fact, or does it correlate systematically with other facts about verbs derived from nouns that a linguistic theory should account for? This class is an introduction to basic concepts and issues in the study of word meaning within theoretical linguistics. It explores grammatical regularities in word meaning, what kinds of information can be grammatically encoded by words, how the meaning of a word can determine the word's syntactic distribution, and how it relates to the inferences people draw from the utterances in which a word

occurs. The course will demonstrate that addressing questions of lexical meaning draws on the full resources of linguistic theory and methodology.
Instructor(s): Francez, Itamar Terms Offered: Autumn
Prerequisite(s): LING 20301 - Introduction to Semantics and Pragmatics
Equivalent Course(s): LING 27131

COGS 22015. Computational Linguistics. 100 Units.
This course is a mixed level introduction to topics at the intersection of computation and language. We will study computational linguistics from both scientific and engineering angles: the use of computational modeling to address scientific questions in linguistics and cognitive science, as well as the design of computational systems to solve engineering problems in natural language processing (NLP). The course will combine analysis and discussion of these approaches with training in the programming and mathematical foundations necessary to put these methods into practice. The course is designed to accommodate students both with and without prior programming experience. Our goal is for all students to leave the course able to engage with and critically evaluate research in cognitive/linguistic modeling and NLP, and to be able to implement intermediate-level computational models for novel computational linguistics research.
Instructor(s): Thorburn, Craig Terms Offered: Winter
Equivalent Course(s): LING 28620, LING 38620

COGS 22016. Advanced Computational Linguistics. 100 Units.
This course provides an in-depth study of advanced topics at the intersection of computation and language, oriented toward linguists and cognitive scientists. The class will focus on both scientific and engineering perspectives - the use of computational modeling to address advanced scientific questions in linguistics and cognitive science, as well as the design of computational systems to solve engineering problems. Topics will include machine translation, parsing, automatic speech recognition, transformer models, and large language models (LLMs), where we will focus on the implementation of these techniques. Students will work towards formulating research questions that can be addressed with complex computational methodology. Students will learn how to generate scripts and implement advanced computational techniques from scratch. Prior knowledge of Python is required.
Instructor(s): Craig Thorburn Terms Offered: Spring
Equivalent Course(s): LING 22800, LING 32800

COGS 22501. Nature and Nurture in Language and Cognition. 100 Units.
One of the most interesting puzzles of human cognitive development, often called Plato's Problem, is how human beings are able to learn so much about the world on the basis of such little experience. To what extent are our cognitive faculties due to our genetic endowment, and to what extent are they the result of our experience of the world? In this class, we will explore, through in-class discussion and readings in psychology, philosophy, linguistics, and computer science, how humans acquire the capacity for language, concepts, spatial and moral reasoning, and much more.
Instructor(s): Zach Lebowski Terms Offered: Autumn
Equivalent Course(s): LING 22501

COGS 22502. Perceptual Models of Speech. 100 Units.
When hearing speech, humans rapidly and robustly map from a continuous acoustic signal to an abstract representation of the sounds of their language. This class will explore models of this acoustic-phonetic perceptual mapping by drawing from a variety of methodologies and perspectives. We will discuss the merits and issues of linguistic, computational, and neuroscientific approaches and draw connections between these disciplines. A background in neuroscience or computational modeling is not required.
Instructor(s): Thorburn, Craig Terms Offered: Winter
Equivalent Course(s): LING 31730, PSYC 21730, LING 21730

COGS 22503. The Linguistics of Large Language Models. 100 Units.
TBD.
Instructor(s): Thorburn, Craig Terms Offered: Autumn
Equivalent Course(s): LING 32860, LING 22860

COGS 23009. The Philosophy of Artificial Intelligence: Mind and Model. 100 Units.
What can reflection upon artificial intelligence teach us about human thought? This question may be asked and understood in many ways. Our concern will be philosophical: the insight we seek is into the nature and structure of thought as it is for the one thinking, as it informs, shapes, or constitutes the life of a thinking being. This course will lay the groundwork for pursuit of our question by (1) introducing and examining the idea of a model of a human intellectual capacity (2) outlining the basic concepts needed for understanding the architecture of the currently most noteworthy form of artificial intelligence-the class of language models known as GPTs, (3) introducing some of the philosophical ideas needed for analyzing the forms of thought that go into human linguistic communication, and finally (4) endeavoring to bring all of these elements together. (B)
Instructor(s): Jason Bridges; Benjamin Callard Terms Offered: Autumn
Prerequisite(s): While some of the philosophical readings are challenging, prior familiarity with philosophy is not a prerequisite.
Equivalent Course(s): PHIL 39906, PHIL 29906

COGS 23530. Truth. 100 Units.
Alternative facts'' and "fake news" have fueled growing concerns that we are entering a ``post-truth'' society. But what exactly is truth, and why should we care about it? We will address this question over the course of this quarter by examining contemporary views on the role of truth in meaning and communication; challenges to these views from uncertainty and subjectivity; arguments for and against different conceptions of truth; expressions of skepticism about the value of truth; different categories of non-truth (lies vs.\ b.s.); and how all of these issues bear on the relation between truth, belief and decision making. Along the way, we will consider whether our claims to know certain things are always limited because they come from a particular perspective, and what value (if any) truth contributes to the well-lived life.
Instructor(s): Chris Kennedy Terms Offered: Spring
Equivalent Course(s): SIGN 26007, LING 26020

COGS 24001. Prediction in Language Comprehension. 100 Units.
Language tends to follow predictable patterns, from what sounds and words are about to be uttered, to what grammatical structures are likely, to be used to what broader implications are about to be suggested, and more. One prevailing hypothesis is that the human mind can take advantage of this predictability to help maintain the rapid pace of language comprehension. This course will explore critical questions surrounding the nature of prediction processes during language comprehension. What do people predict? How are their predictions constrained? How can we study the inherently internal process(es) of prediction? What are the consequences of prediction? Perhaps most importantly, what do the answers to these questions suggest about the mechanisms and computations of prediction? Readings will primarily consist of contemporary articles from peer-reviewed journals, and class meetings will be a mix of lectures and student-led discussions.
Instructor(s): Melinh Lai Terms Offered: Spring
Equivalent Course(s): COGS 34001, EDSO 24001, PSYC 24090, LING 24001

COGS 24532. Blooming, Buzzing Confusion. 100 Units.
This course examines the social and cognitive mechanisms that drive language learning in the first few years of life. Nearly all children learn the language(s) of their community, despite the fact that human languages and caregiving practices offer immense diversity around the globe. What enables the learning system to adapt so robustly to the environment it finds itself in? We discuss the evidence for and against multiple factors that have been proposed to support language development across the world's communities. We also critically examine how these ideas intersect with current deficit models of language learning. It is expected that, by the end of the course, students will grasp the basic mechanisms proposed to underlie early language learning.
Instructor(s): M. Casillas Terms Offered: Winter
Note(s): Distribution: B, M
Equivalent Course(s): LING 23010, CHDV 23010, CHDV 33510, EDSO 23510, PSYC 23510, EDSO 33510

COGS 25001. Foundations of Neurolinguistics. 100 Units.
This course will explore the cognitive and neural bases underlying language comprehension and production. Class topics will draw on historic and contemporary research invoking a range of neuroimaging techniques to examine how sound, meaning, and structure are processed in the brain. Students will also explore how theories about the computations and representations underlying human language can inform, and be informed by, the biological constraints imposed by the nervous system. Prior knowledge of neuroscience is not required, but familiarity with linguistic and psychological concepts may be beneficial.
Instructor(s): Lai, Melinh Terms Offered: Autumn
Equivalent Course(s): NSCI 23125, PSYC 25010, LING 25001

COGS 25518. Structure, Circuits and Development of the Forebrain. 100 Units.
The forebrain is the largest division in the brains of mammals and birds. This course will address its structure as a laboratory exercise with slides and computer image supplementation. Our study of forebrain circuitry and development will draw on primary research papers and comprehensive reviews, and the rich research resources of the Parisian neuroscience community. Our survey will include thalamus, hypothalamus, the amygdala, and the basal ganglia, but our focus will be on the largest structure in our brains, the neocortex.
Instructor(s): C. Ragsdale Terms Offered: Autumn
Prerequisite(s): Enrollment into the Paris Study Abroad Program
Equivalent Course(s): NSCI 21620

COGS 25519. Spinal Cord and Brainstem Neuroanatomy & Disability. 100 Units.
This course is part of the Study Abroad Neuroscience program in Paris, France. In this course, we will learn the neuroanatomy of spinal and cranial nerves, the spinal cord, and brainstem. Learning will be hands-on using glass slides of stained brain tissue. Laboratory exercises will be used to illustrate principles of neurological function. Along the way, we will examine the impact of neural dysfunction on a person's life. Outings to pathological museums will expose students to the display of human remains from persons with or without neurological anomaly; discussions regarding the ethics of such displays will ensue.
Instructor(s): P. Mason Terms Offered: Autumn
Prerequisite(s): Enrollment into the Paris Study Abroad Program
Equivalent Course(s): NSCI 21630

COGS 26001. Movies and Minds: Scientific Approaches in Cinema Studies. 100 Units.
This course provides an overview of the state-of-the-art knowledge on how human minds and brains engage with and respond to film and media. Using such interdisciplinary approaches as neuroscience, experimental psychology, linguistics, analytical philosophy, film theory, and cognitive film studies, we will try to understand why we like to watch movies; how we process what we see and hear on the screen; why some movies attract more than others; how identity, politics, and culture may affect the viewer response; and what the nature of the mind's engagement with art might be.
Instructor(s): Maria Belodubrovskaya Terms Offered: Autumn
Equivalent Course(s): CMST 36089, CMST 26089, SIGN 26089

COGS 26201. Language in Culture in the Technological Age. 100 Units.
How are contemporary global communication technologies and the rapid rise of large-scale generative communicative models transforming how we use and understand language? This interdisciplinary seminar course explores the intersections of these technological advancements with the semiotic and discursive analysis of communication in sociocultural life-a methodology developed within linguistic anthropology and sociolinguistics since the 1980s. We will investigate topics such as how digital and AI-driven environments interact and mediate communication, power dynamics, and institutional structures; how contemporary communicative technology reshapes discursive practices and, in turn, is influenced by them; how political economy underpins and shapes emerging forms of communicative labor; and how diverse communities negotiate, adapt, or re-create their linguistic practices in response to various existing and emerging forms of globalized media. Particularly, we will explore the application of theories and concepts from linguistic anthropology, pragmatics, and sociolinguistics to analyze and reflect on recent textual and discursive materials arising from generative AI and new forms of human-machine interaction. Readings and materials will be drawn from linguistic anthropology, sociolinguistics, cognitive science, computer science, the history of science, and Science Studies. Graduate students and 3rd and 4th-year undergraduates; consent required for others.
Instructor(s): Eugene Yu Ji Terms Offered: Spring
Equivalent Course(s): ANTH 36201, LING 26201, LING 36201, COGS 36201, ANTH 26202

COGS 26501. Madwomen. 100 Units.
What is madness? What does it mean to go crazy? What does it mean to be driven crazy? This course examines different forms of madness, probes the relationship between race, gender, and disability, and explores the potential wisdom found in madness by looking to madwomen in twentieth and twenty-first century literature. We will both consider madness as an object within literary studies and the lived experience of the madwomen characters and authors through the lens of Mad studies and activism. Tentative readings include The Bell Jar (Plath, 1963), The Bluest Eye (Morrison, 1970), Freshwater (Emezi, 2018), excerpts from The Collected Schizophrenias (Wang, 2019), and others. Students will also be asked to engage spaces that center the Mad such as the Center for Mad Culture and Project LETS. This course will include writing components that ask students to read literary texts and/or cultural moments through mad methodology and a final essay in lieu of an exam.
Instructor(s): Rhya Moffitt Terms Offered: Winter
Equivalent Course(s): GNSE 10455, ENGL 10455

COGS 26503. Writing Dreams. 100 Units.
In this course students will study poetry, literature, and art written with dreams and dream practices to better understand the relation between dreaming and writing; and to gain some creative practice in connecting their own writing to their dreaming. We will read literature from a broad range of cultural and historical locales to gain an expanded sense of oneiric writing. And we will intensify that reading with regular writing exercises meant to elicit poetics from the subconscious. In doing so we will trouble simplistic accounts of the subconscious as merely suppressed or hidden consciousness, considering instead how the psychology of nightly visions relates to social, political, historical, and anthropological worlds. Students will be expected to maintain daily/nightly writing journals with weekly prompts to facilitate creative works. Final projects will consist of a polished portfolio or some equivalent. (Poetry, Theory)
Instructor(s): Edgar Garcia Terms Offered: Winter
Equivalent Course(s): ENGL 25810

COGS 26504. Psychoanalysis: Freud and Beyond. 100 Units.
This course offers an introduction to psychoanalytic theory by surveying significant writings by Freud and Freud's readers. We will pay particular attention to the way that Freud's theories of the mind translate into theories of the social world and of history. Taking its cue from the "beyond" of Freud's Beyond the Pleasure Principle, the course will pay especial attention to the development of the death drive and explore its relationship to a constellation of psychoanalytic terms including but not limited to instincts and the drive, narcissism, melancholia, masochism, and religion/illusion. How have these concepts evolved over the course of their deployment in 20th- and 21st-century critical and political projects like feminism and queer theory? How have major developments in psychoanalysis read Freud anew? And in what ways do these psychoanalytic projects respond to their historical conditions-especially conditions marked by political, ecological, economic, and public health crises?
Instructor(s): Kris Trujillo Terms Offered: Spring
Equivalent Course(s): CMLT 38830, GNSE 28830, ENGL 38830, ENGL 28380, GNSE 38830, RLVC 38830, RLST 28830, CMLT 28830

COGS 26802. Religion and Psychiatry. 100 Units.
This course will investigate the many theoretical and practical problems which emerge where the domains of psychiatry and religion overlap. We will explore questions such as: What are the common realities that religious and psychiatric frameworks seek to explain? Are being "divinely inspired" and being "mad" mutually exclusive? How do religious and other cultural categories shape the development of what are called "mental disorders"? Are cognitive behavioural therapists more effective than witchdoctors at restoring people to health? We will begin with a brief overview of the history of psychiatry, before analyzing a famous case of mass demonic possession in 17th century France. We will take several weeks to explore contemporary psychiatric diagnoses, contrasting how psychiatrists and religious authors describe similar symptoms in different ways. We will compare diverse therapeutic methods, modern and traditional, to ask what makes each of them effective or ineffective. Finally, we will survey proposed alternatives to the prevailing diagnostic frameworks within psychiatry, asking which, if any, our study of the overlapping domains of religion and psychiatry might lend support.
Instructor(s): Owen Joyce-Coughlin Terms Offered: Spring
Equivalent Course(s): HLTH 23300, RLST 23300, CCTS 23300, ANTH 23301

COGS 26803. Truth, Half-Truth, and Post-Truth. 100 Units.
This course examines the philosophical and ethical issues surrounding lying, truth-telling, and everything in between. Students will put classics of the Indian and Western philosophical traditions into conversation with contemporary analyses of "alternative facts" and postmodern criticisms of absolute truth. Questions to be considered include: Are half-truths just another kind of lie, or stepping-stones to a more complex understanding? Is it even possible to tell "the truth, the whole truth, and nothing but the truth"? Is it morally permissible to mislead someone for their own good, or for a leader to deceive their citizens? How can we act responsibly when there are two sides to every story?
Instructor(s): Russell Johnson Terms Offered: Autumn
Equivalent Course(s): RLST 27140

COGS 29001. Contemporary Topics in Cognitive Science. 100 Units.
This course will survey multiple areas of modern research currently being conducted across the subfields of cognitive science. Each week we will discuss a new topic of contemporary cognitive science research and participate in a lecture from a researcher in that field. Students should expect to complete weekly readings of scholarly articles and other primary literature, which we will then further contextualize with the other topics in the course and the broader visions of modern cognitive science research.
Instructor(s): Melinh Lai Terms Offered: Winter
Prerequisite(s): COGS 20001 and COGS 20002
Note(s): Priority registration will be given to third-year students who are majoring in cognitive science.
Equivalent Course(s): COGS 39001, LING 39001, LING 29001