

Cognitive Science & Philosophy

PHIL 2655 | Fall 2026

1. General Information

Course Info

	Morning section (V001)	Afternoon section (V002)
Meeting Time:	Tuesdays & Thursdays, 10:10-11:25 PM	Tuesdays & Thursdays, 1:10-2:25 PM
Location:	223 Milbank Hall	203 Diana Center
Course Website:	CourseWorks link	CourseWorks link

Instructor: Prof. Tyler Knowlton
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Office Hours: Thursdays 2:30-4:15 (or by appointment)

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Office Hours: Tuesdays & Thursdays 4:15-6:30

Course Description

What are minds? What kind of knowledge is in them? And how did that knowledge get there? This course will survey a number of topics at the intersection of cognitive science and philosophy, focusing on philosophical questions that animate modern cognitive scientists and that are the subject of ongoing debate. Among other things, we'll discuss the cognitive revolution that created the field, what cognitive scientists mean when they say that the mind is a computer, whether machines can think, how the mind and the brain are related, what the basic building blocks of thought look like, and the question of whether knowledge is innate or learned.

This course has no prerequisites and does not assume any background knowledge of cognitive science or philosophy. That said, having taken *Introduction to Cognitive Science* (COGS 1001) will probably help you situate some of the questions we'll consider with respect to the field at large.

Learning Objectives

- Demonstrate ability to summarize arguments (e.g. identify premises and conclusions).
- Engage with difficult texts critically and charitably.
- Demonstrate broad knowledge of the intellectual origins, key figures, and foundational questions that gave rise to cognitive science (and still shape the field today!).
- Compare and contrast competing theoretical frameworks for explaining cognitive phenomena.
- Analyze how empirical findings from psychology, linguistics, neuroscience, and AI research bear on philosophical debates about the nature of the mind.

2. Materials and Format

Course Materials

No textbooks or subscriptions are required for this course. All readings will be posted as PDFs on the class CourseWorks page (see links above) so you do not have to purchase anything.

CourseWorks is also where all assignments for the course should be submitted and where other communications (e.g., announcements, syllabus changes, grades) will be housed.

Class Format

This is an in-person lecture course meeting twice each week. The midterm and final exams will be based on what we discuss in lecture. There will also be at least one interactive electronic poll per class which will count toward your participation grade (see the Requirements & Evaluation section below for more details).

We will use **Poll Everywhere**, which collects real-time responses from any computer or mobile device with internet access. At the beginning of the course, you will be invited to register with our Poll Everywhere account (Pollev.com/tylerknowlton) using your Barnard or Columbia email address. If you need help, see the instructions for setting up and joining the course on Poll Everywhere [here](#).

3. Requirements & Evaluation

Here's a breakdown of what will go into your final grade:

Component	Weight
Midterm exam	25%
Final exam	35%
Group discussion assignments (x3)	15% (5% each)
In-class participation questions	15%
Reading questions	10%

Midterm exam (25%)

The midterm exam will be an in-class, paper & pencil exam (with no electronic devices allowed). It will consist of open-ended response questions each requiring a short (~1 paragraph) answer. These questions will be based on content discussed in lecture and the required readings. You won't be tested on the optional readings outside of the parts of them that we discuss in class. We'll go over practice questions in the class period before the exam to help you prepare.

Final exam (35%)

The final exam will be the same format: an in-class, paper & pencil exam (with no electronic devices allowed) consisting of open-ended response questions requiring a short (~1 paragraph) answer that are based on content discussed in lecture and the required readings. It will not be cumulative; it will focus on the material covered since the midterm. That said, it will be cumulative in the sense that what we discuss in the second half of the course may rely on some concepts/ideas introduced earlier. We'll have an in-class final review similar to the midterm review to help you prepare.

Group discussion assignments (15%)

You will be part of a ~4-person discussion group that will meet outside of class three times during the semester to discuss assigned readings (the required ones). The specific dates are given in the class schedule below. You must film your discussion (e.g., by placing someone's phone or laptop at the end of the table) and **one member of the group must upload the video along with a document containing the names of all group members participating. Each member of the group must upload a document outlining three points that you felt were interesting that came out of the discussion** (e.g., things you want to talk about more in class, things you found cool or confusing, things that you agreed or disagreed with the author(s) about, ways of relating the paper to broader themes discussed in the class etc.). Discussions should last for at least 30 minutes, though can go as long as you like.

Each group discussion assignment will be worth 5% and will be graded on effort, not any sort of "correctness" in evaluating the paper's claims. This is intended to be a fun, low-stress excuse to deeply read and discuss a paper with your peers, not a test of your understanding.

If you don't want to be randomly assigned to a group, you are welcome to form a group with other students. Just be sure to submit your request by the deadline given in the course schedule below (there will be an optional assignment in CourseWorks where you can make a group request).

In-class participation questions (15%)

During most lectures, there will be one or two Poll Everywhere questions (exceptions include midterm and final review days). These will be graded on completion, not correctness (and often there will be no "correct" answer anyway). **If you answer at least 80% of the in-class participation poll questions throughout the semester, you will earn full credit for this component.** That means that if you miss a few days of class (or step out of class at precisely the wrong moment), you can easily still earn all 15 points toward your final grade. If, however, you answer under 80% of the poll questions, you will earn *that* percentage. For instance, if you answered only 75% of the questions over the course of the semester, you would earn a 75% for this component of the class. Since this rule builds in a generous buffer, there will be no makeups for missed participation questions.

Reading questions (10%)

During most classes with an assigned reading, you'll answer a short Poll Everywhere quiz about the required reading. Unlike in-class participation questions, these are graded for correctness. Also unlike in-class participation questions, if you miss a class, you can arrange to complete that day's reading questions during office hours. If illness, a family emergency, or a religious observance will keep you from class, please email us in advance when possible. The suggested background readings listed in the course calendar below are optional and will not be the subject of reading questions. However, you are encouraged to read them if you're interested in the topic further!

Grading Scale

Letter/Range			
A+ 99–100%	B+ 87–89%	C+ 77–79%	D 60–69%
A 93–98%	B 83–86%	C 73–76%	F Below 60%
A- 90–92%	B- 80–82%	C- 70–72%	

Numerical grades will be rounded to the nearest integer before conversion to a letter grade (e.g., 89.5% $\Rightarrow$ 90% $\Rightarrow$ A-; 89.49% $\Rightarrow$ 89% $\Rightarrow$ B+). Final grades will not be not curved.

4. Course Schedule

The schedule below is subject to change (any updates will be reflected on the class CorseWorks page, so check there for the most current version). Here are a few important dates to keep in mind:

- The Add deadline is Sept. 18th. The Drop deadline is Oct. 13th.
- We won't have class on the following days: Tuesday, Nov. 3rd, Tuesday, Nov. 24th, Thursday, Nov. 26th.
- Discussion group requests (if you don't want to be randomly assigned to one) are due **before class** on Thursday, Sept. 24th.
- Group discussion assignments are due **before class** on Tuesday, Sept. 29th, Tuesday, Oct. 13th, and Thursday, Nov. 5th.
- The midterm exam is Thursday, Oct. 22nd.
- **Your final exam date is dependent on your section:** Thursday, Dec. 17th for the Morning Section (V001) or Tuesday, Dec. 22nd for the Afternoon Section (V002). See below for exact times.

Date	Topic	Readings/Assignments (due before class)
Tues, Sep 8	Introduction: What are Minds, What's in Them, and How did it Get There?	
Thur, Sep 10	The Cognitive Revolution I: Mental Maps	Tolman (1948) Cognitive maps in rats and men [11 pages] <i>suggested background reading (optional):</i> Graham (2023) Behaviorism (from <i>The Stanford Encyclopedia of Philosophy</i>)

Date	Topic	Readings/Assignments (due before class)
Tues, Sep 15	The Cognitive Revolution II: Mental Grammars	Jackendoff (1994) The argument for mental grammar (Chapter 2 of <i>Patterns in the Mind</i>) [14 pages] <u>suggested background reading (optional):</u> Chomsky (1959) A review of B. F. Skinner's verbal behavior Dennett (1981) Skinner skinned (Chapter 4 of <i>Brainstorms</i>)
Thur, Sep 17	The Cognitive Revolution III: Computation	What is a Turing Machine? (quick tutorial from Cambridge's Department of Computer Science & Technology) [6 pages] Dennett (2013) An interlude on computers (Chapter IV of <i>Intuition Pumps and Other Tools for Thinking</i>) [37 pages] <u>suggested background reading (optional):</u> Rescorla (2026) The Computational Theory of Mind (from <i>The Stanford Encyclopedia of Philosophy</i>) [Sections 1-3 (pp. 1-8)]
Tues, Sep 22	Computational Theory of Mind I: The Mind as a Computer (Literally!)	Gallistel (1998) Symbolic processes in the brain: The case of insect navigation (Chapter 1 of <i>An Invitation to Cognitive Science vol. 4: Methods, Models, and Conceptual Issues</i>) [47 pages] <u>suggested background reading (optional):</u> Clark (2013) Meat machines: Mindware as software (Chapter 1 of <i>Mindware: An Introduction to the Philosophy of Cognitive Science</i>)
Thur, Sep 24	Computational Theory of Mind II: Multiple Realizability, Functionalism, & The Mind-Body Problem	Kim (2011) Mind as a computing machine: Machine functionalism (Chapter 5 of <i>Philosophy of Mind</i>) [28 pages (pp. 2-29)] → DISCUSSION GROUP REQUESTS DUE (optional) ← <u>suggested background reading (optional):</u> Bickle (2020) Multiple realizability (from <i>The Stanford Encyclopedia of Philosophy</i>)
Tues, Sep 29	Computational Theory of Mind III: Scope, Limits, & Detractors	Epstein (2016) The empty brain [12 pages] → GROUP DISCUSSION ASSIGNMENT ← <u>suggested background reading (optional):</u> Jackson (1982) Epiphenomenal Qualia Fodor (2000) Introduction: Still snowing + Syntax and its discontents (Intro + Chapter 2 of <i>The Mind Doesn't Work That Way: The Scope and Limits of Computational Psychology</i>)

Date	Topic	Readings/Assignments (due before class)
Thur, Oct 1	Computational Theory of Mind IV: Can machines <i>understand</i> ?	Bender & Koller (2020) Climbing towards NLU: On meaning, form, and understanding in the age of data [9 pages] <u>suggested background reading (optional):</u> Searle (1980) Minds, brains, and programs [pp. 1-8] Turing (1950) Computing machinery and intelligence Bender, Gebru, McMillan-Major, & Shmitchell (2021) On the dangers of stochastic parrots: Can language models be too big? 🦜
Tues, Oct 6	Levels of Analysis I: The Top-Down Strategy	Marr (1982) General introduction + The philosophy and the approach (Intro + Chapter 1 of <i>Vision: A Computational Investigation into the Human Representation and Processing of Visual Information</i>) [36 pages] <u>suggested background reading (optional):</u> Fodor (1999) Diary: why the brain? Jonas & Kording (2017) Could a neuroscientist understand a microprocessor?
Thur, Oct 8	Levels of Analysis II: Where do Neural Networks Fit In?	Marcus (2001) Cognitive architecture + Multilayer perceptrons [Chapters 1 + 2 of <i>The Algebraic Mind: Integrating Connectionism and Cognitive Science</i>] [34 pages] <u>suggested background reading (optional):</u> Fodor & Pylyshyn (1988) Connectionism and cognitive architecture: A critical analysis [Chapter 1 of <i>Connections and Symbols</i>] Buckner (2019) Deep learning: A philosophical introduction
Tues, Oct 13	Representational Format I: The Mental Imagery Debate	Kosslyn, Thompson, & Ganis (2006) Mental images and mental representations (Chapter 1 of <i>The Case for Mental Imagery</i>) [14 pages] Pylyshyn (2003) Return of the mental image: are there really pictures in the brain? [5 pages] → GROUP DISCUSSION ASSIGNMENT ← <u>suggested background reading (optional):</u> Nanay (2026) Mental Imagery (from <i>The Stanford Encyclopedia of Philosophy</i>) Pylyshyn (1973) What the mind's eye tells the mind's brain: A critique of mental imagery
Thur, Oct 15	Representational Format II: Language(s) of Thought	Quilty-Dunn, Parot, & Mandelbaum (2023) The best game in town: The reemergence of the language-of-thought hypothesis across the cognitive sciences [pp. 1-16] <u>suggested background reading (optional):</u> Rescorla (2023) The language of thought hypothesis (from <i>The Stanford Encyclopedia of Philosophy</i>)

Date	Topic	Readings/Assignments (due before class)
Tues, Oct 20	Midterm Review	Come with questions!
Thur, Oct 22	Midterm Exam	
Tues, Oct 27	Concepts I: Conceptual Structure	Armstrong, Gleitman, & Gleitman (1983) What some concepts might not be [43 pages] <u>suggested background reading (optional):</u> Laurence & Margolis (1999) Concepts and cognitive science (Chapter 1 of <i>Concepts: Core Readings</i>)
Thur, Oct 29	Concepts II: The Language & Thought Debate	Winawer et al. (2007) Russian blues reveal the effect of language on color discrimination [pp. 1-5] <u>suggested background reading (optional):</u> Gleitman & Papafragou (2005) Language and thought (Chapter 26 of <i>The Cambridge Handbook of Thinking and Reasoning</i>) Pullum (1989) The great Eskimo vocabulary hoax
Tues, Nov 3	NO CLASS (election day)	
Thur, Nov 5	Concepts III: Can Language Change or Create Concepts?	Majid, Bowerman, Kita, Haun, & Levinson (2004) Can language restructure cognition? The case for space [6 pages] Li, Abarbanell, Gleitman, & Papafragou (2011) Spatial reasoning in Tenejapan Mayans [20 pages] → GROUP DISCUSSION ASSIGNMENT ← <u>suggested background reading (optional):</u> Li & Gleitman (2002) Turning the tables: language and spatial reasoning Levinson et al. (2002) Returning the tables: language affects spatial reasoning
Tues, Nov 10	Innateness I: Rationalism vs. Empiricism	Plato's Meno [28 pages] The Locke/Leibniz debate (Chapter 2 of Stich 1975 <i>Innate ideas</i>) [16 pages] <u>suggested background reading (optional):</u> Laurence & Margolis (2024) What the Rationalism-Empiricism debate is really about (Chapter 2 of <i>The Building Blocks of Thought</i>) Samuels (2002) Nativism in cognitive science

Date	Topic	Readings/Assignments (due before class)
Thur, Nov 12	Innateness II: The View from Cognitive Development	Spelke (1998) Nativism, empiricism, and the origins of knowledge [16 pages] <u>suggested background reading (optional):</u> Wang & Feigenson (2019) Is empiricism innate? Preference for nurture over nature in people's beliefs about the origins of human knowledge Spelke & Kinzler (2007) Core knowledge
Tues, Nov 17	Innateness III: "Mad Dog" Nativism	Laurence & Margolis (2002) Radical concept nativism [29 pages] <u>suggested background reading (optional):</u> Fodor (1981) The present status of the innateness controversy (Chapter 10 of <i>Representations: Philosophical Essays on the Foundations of Cognitive Science</i>)
Thur, Nov 19	Innateness IV: Quinian Bootstrapping	Carey (2011) Précis of <i>The Origin of Concepts</i> [pp 1-12] <u>suggested background reading (optional):</u> Rey (2014) Innate and learned: Carey, Mad Dog Nativism, and the Poverty of Stimuli and analogies (yet again) Carey (2014) On learning new primitives in the language of thought: Reply to Rey
Tues, Nov 24	NO CLASS (Prof. Knowlton away)	
Thur, Nov 26	NO CLASS (Happy Thanksgiving!)	
Tues, Dec 1	Poverty of the Stimulus I: Irradiated Rats and Dancing Bees	Gallistel (2010) Learning organs (Chapter 8 of <i>Chomsky Notebook</i>) [10 pages] <u>suggested background reading (optional):</u> Davidson & Riley (2015) Taste, sickness, and learning
Thur, Dec 3	Poverty of the Stimulus II: Language Acquisition	Lidz & Knowlton (2026) The poverty of the stimulus: Anaphoric one (Chapter 5 of <i>A Course in First Language Acquisition</i>) [11 pages] <u>suggested background reading (optional):</u> Crain & Pietroski (2001) Nature, nurture and universal grammar
Tues, Dec 8	Modularity: Carving the Mind at its Joints	Firestone & Scholl (2016) Cognition does not affect perception: Evaluating the evidence for "top-down" effects [pp. 1-19] <u>suggested background reading (optional):</u> Fodor (1985) Précis of <i>The Modularity of Mind</i> [pp. 1-5]

Date	Topic	Readings/Assignments (due before class)
Thur, Dec 10	Final review	Come with questions!
<u>Morning Section:</u> Thur, Dec 17 <u>Afternoon Section:</u> Tues, Dec 22	Final Exam	(Morning section's exam time is 8:30-11:30am; Afternoon section's exam time is 12-3pm)

5. Course Policies

Anonymous Feedback

I'm always interested in improving my teaching and my classes, so if there's any feedback you'd like to share during or after the course, you can do so anonymously with [this form](#).

Late Policy

Work submitted late without a prior extension will be marked down 10% if submitted within 24 hours of the deadline, and an additional 5% for each additional day late. This applies, for example, to group discussion assignments (which are due before class on the day they're listed on the syllabus).

Barnard College Honor Code

Approved by the student body in 1912 and updated periodically, the Honor Code states:

"We, the students of Barnard College, resolve to uphold the honor of the College by engaging with integrity in all of our academic pursuits. We affirm that academic integrity is the honorable creation and presentation of our own work. We acknowledge that it is our responsibility to seek clarification of proper forms of collaboration and use of academic resources in all assignments or exams. We consider academic integrity to include the proper use and care for all print, electronic, or other academic resources. We will respect the rights of others to engage in pursuit of learning in order to uphold our commitment to honor. We pledge to do all that is in our power to create a spirit of honesty and honor for its own sake."

More details (including 2026 updates) can be found at: <https://barnard.edu/student-conduct-pilot>

Use of Generative AI Tools

For the current academic year (2026-2027), Barnard College is providing an [AI Usage Scale](#) (see below) to allow faculty to indicate whether AI use is acceptable in a given course and, where applicable, the level and type of AI permitted for specific assignments. **The scale number 0 applies to all of this course's in-class assignments;** that is, AI use is not permitted at all on the midterm and final exams, the in-class participation questions, or the reading questions. **For group discussion assignments, the scale number 1 applies.** That is, you should not use AI to create a script or list of points to discuss with your group. But, if you wish, you may consult with AI and

see how it responds to questions that you have while reading or ask it to point to other potentially related readings. If you do, and if you choose to discuss those responses during your group discussion, you should flag them as being AI generated and take the opportunity to critically evaluate them.

Please feel free to consult with me if at any point you have questions about the kinds of secondary material and study tools allowed for this course.

0 - No AI	You must not use AI at any point during the assignment. You must demonstrate your own skills and knowledge.
1 - AI Planning	You may use AI for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.
2 - AI Collaboration	You may use AI to assist with specific tasks related to refining your original work. As part of your process, you should critically evaluate and modify any AI-generated content you use.
3 - Full AI	You may use AI extensively throughout your work either as you wish, or as specifically directed in your assignment. The goal here is strategic use of existing AI tools to augment your own work.
4 - AI Exploration	You should use AI creatively to solve the task, working to develop new tools and extending our understanding of what AI can do.

Class Climate

Philosophy classes and cognitive science classes can raise questions that people can reasonably disagree about, and while lively discussion is welcome, please engage each other's ideas generously and respectfully; aggressive, dismissive, or intolerant speech toward classmates is not acceptable. If you ever have concerns about how you or a classmate has been treated in this course, please reach out to me directly.

Center for Accessibility Resources & Disability Services (CARDS)

If you anticipate barriers to your academic experience due to a documented disability or emerging health challenge, please contact your instructor and/or the Center for Accessibility Resources & Disability Services (CARDS) as early as possible. If you have questions regarding registering a disability or receiving accommodations for the semester, contact CARDS at (212) 854-4634 or cards@barnard.edu. You can learn more about on-campus support at barnard.edu/disability-services. CARDS is located in 307 Diana Center.

Wellness Statement

It is important for you as undergraduates to recognize and identify the different pressures, burdens, and stressors you may be facing, whether personal, emotional, physical, financial, mental, or academic. As a community, we urge you to prioritize yourself — your health, sanity, and wellness — throughout your career on campus. Sleep, exercise, and eating well are all part of a healthy regimen to cope with stress. Resources exist to support you, and we encourage you to make use of them. Should you have any questions about navigating these resources, please visit these sites:

- <http://barnard.edu/primarycare>
- <https://barnard.edu/about-counseling>

- <https://barnard.edu/TheWellnessSpot/about>

Affordable Access to Course Texts & Materials Statement

All students deserve to be able to study and make use of course texts and materials regardless of cost. Barnard librarians have partnered with students, faculty, and staff to find ways to increase student access to textbooks. By the first day of advance registration for each term, faculty are expected to provide information about required texts for each course on CourseWorks (including ISBN or author, title, publisher, copyright date, and price), which can be viewed by students. A number of cost-free or low-cost methods for accessing some types of course texts are detailed in the Barnard Library Textbook Affordability Guide (library.barnard.edu/textbook-affordability). Undergraduate students who identify as first-generation and/or low-income may check out items from the FLIP lending libraries in the Barnard Library (<https://library.barnard.edu/find-borrow/FLIPpartnership>) and in Butler Library for an entire semester. Students may also consult with their professors, librarians, the Dean of Studies, and the Financial Aid Office about additional affordable alternatives for access to course texts.