

PHIL-UA 93, Spring 2024

## PHILOSOPHICAL APPLICATIONS OF COGNITIVE SCIENCE

# COURSE STRUCTURE

*Time & Place* Mondays and Wednesdays, 9:30 to 10:45 AM  
238 Thompson St (GCASL), Room 369

*Texts* All readings are available on the class Brightspace site

*Recitations* The teaching assistant for the class, and the leader of the recitations, is Cristina Ballarini (contact info below)

*Content* We will discuss the relevance of recent discoveries about the mind to philosophical questions about metaphysics and ethics. The questions include: What is causation? Is there a right way to “carve up” the world into categories? Why do we see the world as consisting of objects in places? Is there such a thing as objective right and wrong? Is there such a thing as free will?

*Evaluation* The coursework for the class consists of three 2000 word papers. (There is no mid-term or final exam.) There are four due dates; you should choose three different due dates and submit your three papers on those dates.

- The four due dates are: February 26th, March 25th, April 15th, May 6th, at 9.30 AM.
- Papers will be submitted through the class Brightspace site
- Each of the three papers will contribute 30% of your grade; the final 10% is determined by class participation
- You may submit four papers; the three best papers will then go toward your grade.
- Extensions will be granted only for medical emergencies. However, you have two days of “free” lateness to spend as you choose. For example, you might hand in the first paper one day late and the third paper one day late, without penalty. Or you might hand in the second paper two days late, and so on. It’s your choice how you “spend” these two days.

Just email Cristina before the official deadline letting her know that you plan to use your free extension. We suggest saving the days for when you really need them.

*Ballarini* Office hours are Tuesdays 12:30–2:30, and by appointment

Room 613, 5 Washington Place

cristina.ballarini@nyu.edu

Office hours: Tuesdays 12:30-2:30pm

*Strevens* Office hours are Wednesdays 11:00–12:30, and by appointment

Room 603, 5 Washington Place

strevens@nyu.edu ■ www.strevens.org

*Moses* Academic accommodations are available for students with disabilities. The Moses Center website is [www.nyu.edu/csd](http://www.nyu.edu/csd). Please contact the Moses Center for Student Accessibility (212-998-4980 or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu)) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

*Integrity* Academic integrity means that the work you submit is original. Bringing answers into an examination or copying all or part of a paper straight from a book, the Internet, or a fellow student is a violation of this principle, as is using AI such as ChatGPT to generate the text you submit for grading. But there are other forms of cheating or plagiarizing which are just as serious—for example, presenting an oral report drawn without attribution from other sources (oral or written); writing a sentence or paragraph which, despite being in different words, expresses someone else’s ideas without a reference to the source of the ideas; or submitting essentially the same paper in two different courses (unless both instructors have given their permission in advance). Receiving or giving help on a take-home paper, examination, or quiz is also cheating, unless expressly permitted by the instructor (as in collaborative projects).

*Student Wellness* In a large, complex community like NYU, it’s vital to reach out to others, particularly those who are isolated or engaged in self-destructive activities. Student wellness (<https://cas.nyu.edu/content/nyu-as/cas/academic-programs/student-wellness.html>) is everyone’s responsibility. The NYU Wellness Exchange is the constellation of NYU’s programs and services designed to address the overall health and mental health needs of its students. Students can access this service 24 hours a day, seven

days a week—[wellness.exchange@nyu.edu](mailto:wellness.exchange@nyu.edu); (212) 443-9999. Students can call the Wellness Exchange hotline (212-443-9999) or the NYU Counseling Service (212-998-4780) to make an appointment for Single Session, Short-term, or Group counseling sessions.

# PHILOSOPHICAL APPLICATIONS OF COGNITIVE SCIENCE

## READINGS

---

### Introduction

- Jan 22* Mind, language, and world
- ▷ Whorf, "The relation of habitual thought and behavior to language", 134–152 (optional)
- Jan 24* The perception and metaphysics of color
- ▷ Lakoff, *Women, Fire, and Dangerous Things*, 24–30
  - ▷ Mehler and Dupoux, *What Infants Know*, 53–59

---

### Categories

- Jan 29* The empiricist theory of concepts
- ▷ Locke, *Essay*, Book II chapters 2, 3, 12, 23:1–19, 24 (pp. 119–22, 163–6, 295–307)
- Jan 31* No class
- Feb 5* Concepts of natural kinds: Prototypes
- ▷ Smith, "Concepts and categorization", 3–19
  - ▷ Keil, *Concepts, Kinds and Conceptual Development*, chapter 9; appendix 6. Optional: chapter 8 pp. 161–175; appendix 5
- Feb 7* Concepts of natural kinds: Essentialism
- ▷ Strevens, "The essentialist aspect of naive theories", §§1–3
  - ▷ Lakoff, *Women, Fire, and Dangerous Things*, 32–38 (optional)
  - ▷ Locke, *Essay*, Book III chapter 3:12–20 (pp. 414–20) (optional)
- Feb 12* Concepts of natural kinds: Minimalism
- ▷ Strevens, "The essentialist aspect of naive theories", §§4–5

---

### Causation

- Feb 14* The philosophical psychology of causality: Empiricism
- ▷ Locke, *Essay*, Book II, chapter 21 §1–3, (pp. 233–234)
  - ▷ Hume, *Enquiry*, section VII (pp. 60–69, 73–79) (that is, omit §§54–57)
- Feb 19* President's Day - no class
- Feb 21* The philosophical psychology of causality: Kant
- ▷ Kant, *Critique of Pure Reason*, 222–223, 306–312
  - ▷ Optionally, look at Kant, *Critique of Pure Reason*, 172–174, 178–182 (readings concerning time, from our "Space" reading)

Feb 26 Are causal concepts innate?

◁ Due date

- ▷ Leslie, "ToMM, ToBy, and agency: Core architecture and domain specificity"
- ▷ Scholl and Tremoulet, "Perceptual causality and animacy" (optional)
- First paper due

---

### Reasoning and Probability

Feb 28 Do we think probabilistically?

- ▷ Ballarini, "Credences in active reasoning" (focus on §§3,4)
- ▷ Malt, Ross, and Murphy, "Predicting features for members of natural categories when categorization is uncertain" (optional)

Mar 4 Thinking about probability

- ▷ Holton, *Introduction to Concepts and Theories in Physical Science*, 362-367
- ▷ Xu and Garcia, "Intuitive statistics by 8-month-old infants"

---

### Ethics

Mar 6 Universality and evolution

- ▷ Brown, *Human Universals*, chap. 6, 130-141
- ▷ Trivers, "The evolution of reciprocal altruism", focusing on Introduction, "The model" intro, "Human reciprocal altruism" intro & §§4-5; "Psychological System" intro & §§1-5, 8-9 (i.e., 35-36, 45, 46-47, 47-50, 52-53).

Mar 11 Innateness and evolution

- ▷ Premack and Premack, "Moral belief: Form versus content", 149-161 (the rest is optional)
- ▷ Skyrms, *Evolution of the Social Contract*, chap. 1, 1-21

Mar 13 What does the science of morality tell us about morality?

- ▷ Joyce, *The Evolution of Morality*, 156-162, 179-190

Mar 18 Spring break - no class today or Wednesday

Mar 25 Emotion, moral conflict, and the brain

◁ Due date

- ▷ Greene, Nystrom, Engell, Darley, and Cohen, "The neural bases of cognitive conflict and control in moral judgment"
- Second paper due

Mar 27 Personality and morality

- ▷ Harman, "Moral philosophy meets social psychology: Virtue ethics and the fundamental attribution error"

Apr 1 Free will

- ▷ Wegner and Wheatley, "Apparent mental causation: Sources of the experience of the will"
- ▷ Stetson, Cui, Montague, and Eagleman, "Motor-sensory recalibration leads to an illusory reversal of action and sensation" (optional)

---

## Objects

Apr 3 Philosophical psychology of objects

- ▷ Reread Locke, *Essay*, Book II, chap. 23, §1–6 (from "Categories" reading)
- ▷ Quine, *The Pursuit of Truth*, §§1, 2, 4, 9, 11

Apr 8 Objects and infants

- ▷ Spelke, "Principles of object perception"

Apr 10 The unity of objects

- ▷ Hirsch, "A sense of unity"

---

## Causal Thinking

Apr 15 Naive physics

- ▷ Clement, "A conceptual model discussed by Galileo and used intuitively by physics students"
- ▷ McCloskey, "Naive theories of motion" (optional)
- ▷ Kubricht, Holyoak, and Lu, "Intuitive physics: Current research and controversies" (optional)
- Third paper due

◁ Due date

Apr 17 Children's causal aptitude

- ▷ Schulz, Kushnir, and Gopnik, "Learning from doing: Intervention and causal inference", pp. 1–3, 10–19, 23–28, 36 to end
- ▷ Blaisdell, Sawa, Leising, and Waldmann, "Causal reasoning in rats" (optional)

---

## Space

Apr 22 Philosophical psychology of space

- ▷ Locke, *Essay*, Book II, chap. 9, §7–10 (pp. 145–147)
- ▷ Kant, *Critique of Pure Reason*, 172–178 (pp. 178–184 are optional)

Apr 24 Early psychology of space

- ▷ Descartes, *The World and Other Writings*, 131–139 (optional)
- ▷ Poincaré, *Science and Method*, 93–116

Apr 29 Neuroscience of space

- ▷ Stein and Meredith, *The Merging of the Senses*, 87–98, 111–122
- ▷ Clark, "Visual experience and motor action: Are the bonds too tight?", 495–505

**May 1** Anthropology of space

- ▷ Levinson and Brown, "Immanuel Kant among the Tenejapans: Anthropology as empirical philosophy"

**May 6** Linguistics of space

- ▷ Lakoff, *Women, Fire, and Dangerous Things*, 313-317
- ▷ Jackendoff and Landau, "Spatial language and spatial cognition" 99-103, 106-112, 118-123

◁ *Due date*

Papers are due on Feb 26; Mar 25; Apr 15; May 6

## PHILOSOPHICAL APPLICATIONS OF COGNITIVE SCIENCE

# REFERENCES

- Blaisdell, A. P., K. Sawa, K. J. Leising, and M. R. Waldmann. (2006). Causal reasoning in rats. *Science* 311:1020–1022.
- Brown, D. E. (1991). *Human Universals*. Temple University Press, Philadelphia, PA.
- Clark, A. (2001). Visual experience and motor action: Are the bonds too tight? *Philosophical Review* 110:495–519.
- Clement, J. (1983). A conceptual model discussed by Galileo and used intuitively by physics students. In Gentner and Stevens (1983), pp. 325–339.
- Descartes, R. (1998). *The World and Other Writings*. Translated by S. Gaukroger. Cambridge University Press, Cambridge.
- Gentner, D. and A. Stevens (eds.). (1983). *Mental Models*. Lawrence Erlbaum, Hillsdale, NJ.
- Gopnik, A. and L. Schulz (eds.). (2007). *Causal Learning: Psychology, Philosophy, Computation*. Oxford University Press, New York.
- Greene, J. D., L. E. Nystrom, A. D. Engell, J. M. Darley, and J. D. Cohen. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron* 44:389–400.
- Harman, G. (1999). Moral philosophy meets social psychology: Virtue ethics and the fundamental attribution error. *Proceedings of the Aristotelian Society* 99:315–331.
- Hirsch, E. (1978). A sense of unity. *Journal of Philosophy* 75:470–494.
- Hirschfeld, L. and S. A. Gelman (eds.). (1994). *Mapping the Mind*. Cambridge University Press, Cambridge.
- Holton, G. (1985). *Introduction to Concepts and Theories in Physical Science*. Second edition. Princeton University Press, Princeton, NJ.
- Hume, D. (1975). *An Enquiry Concerning Human Understanding*. Edited by L. A. Selby-Bigge and P. H. Nidditch. Oxford University Press, Oxford.



- Jackendoff, R. and B. Landau. (1992). Spatial language and spatial cognition. In *Languages of the Mind: Essays on Mental Representation*, chap. 6, pp. 99–124. MIT Press, Cambridge, MA.
- Joyce, R. (2006). *The Evolution of Morality*. MIT Press, Cambridge, MA.
- Kant, I. (1997). *Critique of Pure Reason*. Translated by P. Guyer and A. W. Wood. Cambridge University Press, Cambridge.
- Keil, F. C. (1989). *Concepts, Kinds and Conceptual Development*. MIT Press, Cambridge, MA.
- Kubricht, J. R., K. J. Holyoak, and H. Lu. (2017). Intuitive physics: Current research and controversies. *Trends in Cognitive Sciences* 21:749–759.
- Lakoff, G. (1987). *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. University of Chicago Press, Chicago.
- Leslie, A. M. (1994). ToMM, ToBy, and agency: Core architecture and domain specificity. In Hirschfeld and Gelman (1994), pp. 119–148.
- Levinson, S. C. and P. Brown. (1994). Immanuel Kant among the Tenejapans: Anthropology as empirical philosophy. *Ethos* 22:3–41.
- Locke, J. (1975). *An Essay Concerning Human Understanding*. Edited by P. Nidditch. Oxford University Press, Oxford.
- Malt, B. C., B. H. Ross, and G. L. Murphy. (1995). Predicting features for members of natural categories when categorization is uncertain. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 21:646–661.
- McCloskey, M. (1983). Naive theories of motion. In Gentner and Stevens (1983), pp. 299–324.
- Mehler, J. and E. Dupoux. (1994). *What Infants Know: The New Cognitive Science of Early Development*. Translated by P. Southgate. Blackwell, Oxford.
- Poincaré, H. (1914). *Science and Method*. Translated by F. Maitland. T. Nelson, London.
- Premack, D. and A. J. Premack. (1994). Moral belief: Form versus content. In Hirschfeld and Gelman (1994), pp. 149–168.
- Quine, W. V. O. (1990). *The Pursuit of Truth*. Harvard University Press, Cambridge, MA.

- Scholl, B. J. and P. D. Tremoulet. (2000). Perceptual causality and animacy. *Trends in Cognitive Sciences* 4:299–309.
- Schulz, L., T. Kushnir, and A. Gopnik. (2007). Learning from doing: Intervention and causal inference. In Gopnik and Schulz (2007).
- Skyrms, B. (1996). *Evolution of the Social Contract*. Cambridge University Press, Cambridge.
- Smith, E. E. (1995). Concepts and categorization. In E. E. Smith and D. N. Osherson (eds.), *An Invitation to Cognitive Science: Thinking*, pp. 3–33. MIT Press, Cambridge, MA.
- Spelke, E. S. (1990). Principles of object perception. *Cognitive Science* 14:29–56.
- Stein, B. E. and M. A. Meredith. (1993). *The Merging of the Senses*. MIT Press, Cambridge, MA.
- Stetson, C., X. Cui, P. R. Montague, and D. M. Eagleman. (2006). Motor-sensory recalibration leads to an illusory reversal of action and sensation. *Neuron* 51:651–659.
- Stevens, M. (2000). The essentialist aspect of naive theories. *Cognition* 74:149–175.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology* 46:35–57.
- Wegner, D. M. and T. Wheatley. (1999). Apparent mental causation: Sources of the experience of the will. *American Psychologist* 54:480–492.
- Whorf, B. L. (1956). The relation of habitual thought and behavior to language. In J. B. Carroll (ed.), *Language, Thought, and Reality*, pp. 134–159. MIT Press, Cambridge, MA.
- Xu, F. and V. Garcia. (2008). Intuitive statistics by 8-month-old infants. *Proceedings of the National Academy of Sciences* 105:5012–5015.