

# PHIL 6390/ HUMA 6390

## Topics in Philosophy of Science: Natural and Human Sciences

Fall 2023

Thurs., 4:00-6:45 pm, JO 3.536

Instructor: Dr. Jonathan Tsou

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Office: JO 5.522

Office Hours: Thurs, 3:00-6:00 pm

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**Course Description:** This graduate seminar examines special topics in contemporary analytic philosophy of science, including topics in both the natural sciences (e.g., physics, biology) and human/ social sciences (e.g., medicine, psychology). The instructor and graduate students will choose topics based on a possible list of topics (e.g., values in science, mechanisms in the biological and human sciences, structural realism, the looping effects of human kinds). Students are expected to regularly present on the reading materials and to propose topics for the course. Evaluation will be based on classroom participation and performance on writing assignments.

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### Course Texts:

- PDFs provided by instructor
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### Course Evaluation:

Attendance / Participation . . . . .	50%
Writing Assignment 1 (week 8) . . . . .	10%
Writing Assignment 2 (week 12) . . . . .	10%
Final Paper . . . . .	30%

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Writing assignments are 6-8 page (double spaced, times new roman 12 font) short commentaries on one of the topics of the course. Your commentary should identify a point of conflict in the literature and argue for a position. Alternatively, your commentary can focus on explaining and evaluating a position in the literature. The final paper is on a topic of your choice. By or before week 7, you should propose the topic of your final paper (18-24 pages) and include a list of 4-5 readings (readings should be around 20 pages) for discussion in class.

## Possible Topics

Below is a non-exhaustive list of suggested topics. Unless noted otherwise, topics can be covered in 1 class session. Students may choose among the topics listed below, or they may choose their own topic.

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### Epistemic Justice (2 week unit)

- Fricker, Miranda, 2007. *Epistemic Injustice*. Oxford University Press.
  - Daukas, Nancy, 2006. “Epistemic Trust and Social Location,” *Episteme: A Journal of Social Epistemology*, 3(1): 109–124.
  - Anderson, Elizabeth. 2012. “Epistemic Justice as a Virtue of Social Institutions” *Social Epistemology: A Journal of Knowledge, Culture and Policy*, 26(2): 163–173.
  - Dotson, Kristie, 2011. “Tracking Epistemic Violence, Tracking Practices of Silencing,” *Hypatia: A Journal of Feminist Philosophy*, 26(2): 236–257.
  - Crichton, Paul, Carel Havi, and Kidd, Ian James, 2017. “Epistemic Injustice in Psychiatry”. *BJPsychBull*
  - Bueter, Anke 2019. Epistemic Injustice and Psychiatric Classification. *Philosophy of Science*
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### Mechanisms (2 week unit)

- Machamer, P.K., L. Darden, and C.F. Craver, 2000 [MDC], “Thinking about Mechanisms”, *Philosophy of Science*, 67:1–25.
  - Glennan, Stewart, 2002, “Rethinking Mechanistic Explanation”, *Philosophy of Science*, 69: S342–S353
  - Bechtel, W. and A. Abrahamsen, 2005, “Explanation: A Mechanistic Alternative”, *Studies in History and Philosophy of the Biological and Biomedical Sciences*, 36: 421–441.
  - Craver, C.F. 2006, “When Mechanistic Models Explain”, *Synthese*, 153: 355–376.
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### Transformative Experience

- Paul, L. A., 2014, *Transformative Experience*, Oxford: Oxford University Press.
- Paul, L. A. 2015, “What You Can’t Expect When You’re Expecting”, *Res Philosophica*, 92(2): 149–170.

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### Natural Kinds (2 week unit)

- Hacking, Ian 1990. “Natural Kinds”, in R. B. Barrett and R. Gibson, (eds.), *Perspectives on Quine*, Oxford: Blackwell: 129–141.
- Boyd, Richard. 1991. “Realism, Anti-Foundationalism and the Enthusiasm for Natural Kinds”, *Philosophical Studies*, 61: 127–148.
- Boyd, Richard, 1999. “Homeostasis, Species, and Higher Taxa”, in R. Wilson (ed.), *Species: New Interdisciplinary Essays*, Cambridge, MA: MIT Press: 141–186.
- Dupré, J., 1981. “Natural Kinds and Biological Taxa”, *Philosophical Review*, 90: 66–90.
- Khalidi, Muhammed Ali , 2023. *Natural Kinds*. [Cambridge Element](#)

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### The Looping Effects of Human Kinds (2 week unit)

- Hacking, Ian. 1995. “The looping effects of human kinds,” in *Causal Cognition: A Multidisciplinary Debate*, ed. D. Sperber, D. Premack and A. J. Premack, New York: Clarendon Press: 351–394.
- Hacking, Ian. 2007. *Kinds of People: Moving Targets*. Proceedings of the British Academy
- Tsou, Jonathan. 2007. Hacking on Looping Effects and Psychiatric Classification. What is an Indifferent and Interactive kind? *International Studies in Philosophy of Science*
- Tekin, Serife. 2014. [The Missing Self in Hacking’s Looping Effects](#)

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### Values in Science (2 week unit)

- Elliot, Kevin, 2022. *Values in Science*. [Cambridge Element](#)
- Kuhn, T. S. 1977. *Objectivity, Value Judgment, and Theory Choice*.
- Longino, Helen 1990. *Science as Social Knowledge*. Princeton University Press.

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### Underdetermination (2 week unit).

- Gilles, D., 1993, “The Duhem Thesis and the Quine Thesis,” in *Philosophy of Science in the Twentieth Century*, Oxford: Blackwell Publishers, pp. 98–116.
- Laudan, L., 1990, “Demystifying Underdetermination”, in *Scientific Theories*, C. Wade Savage (ed.), (Series: Minnesota Studies in the Philosophy of Science, vol. 14), Minneapolis: University of Minnesota Press, pp. 267–297.
- Stanford, P. K., 2001, “Refusing the Devil’s Bargain: What Kind of Underdetermination Should We Take Seriously?”, *Philosophy of Science*, 68: S1–S12.
- Stanford, P. K. 2006, *Exceeding Our Grasp: Science, History, and the Problem of Unconceived Alternatives*, New York: Oxford University Press.

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### Inductive Risk (2 week unit)

- Douglas, Heather, 2000. "Inductive Risk and Values in Science." *Philosophy of Science*
- Douglas, Heather, 2009. "Science, Policy, and the Value Free Ideal." University of Pittsburgh Press.
- Elliott, Kevin C., 2013, "Douglas on Values: From Indirect Roles to Multiple Goals," *Studies in History and Philosophy of Science Part A* 44 (3), 375-383.
- Intemann, Kristen, 2005, "Feminism, Underdetermination, and Values in Science," *Philosophy of Science*, 72, 1001-1012
- Brown, Matthew, 2022. "Values in Science beyond Underdetermination and Inductive Risk." *Philosophy of Science*

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### Structural Realism

- Worrall, John, 1989, "Structural Realism: The Best of Both Worlds?," *Dialectica*, 43(1–2): 99–124
- Ladyman, James, 1998, "What Is Structural Realism?," *Studies in History and Philosophy of Science Part A*, 29(3): 409–424.
- Van Fraassen, Bas, 2007, "Structuralism(s) about Science: Some Common Problems", *Aristotelian Society Supplementary Volume*, 81: 45–61.

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### A Priori Knowledge in Science

- Summerfield, Donna, 1991. "Modest A Priori Knowledge." *Philosophy and Phenomenological Research*.
- Friedman, Michael, 1997. "Philosophical Naturalism." Proceedings and Addresses of the American Philosophical Association
- Friedman, Michael, 2001. *Dynamics of Reason*. CSLI Publications
- Stump, David 2016. *Conceptual Change and the Philosophy of Science: Alternative Interpretations of the A Priori*. Routledge

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### Epistemic Iteration

- Chang, Hasok 2007. *Inventing Temperature*. Oxford University Press.
- Elliot, Kevin, 2012. "Epistemic and Methodological Iteration in Scientific Research." *Studies in History and Philosophy of Science*.

## Relativism

- Kusch, Martin. 2020. *Relativism*. [Cambridge Elements](#)
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## Feminist Philosophy of Science (2 week unit)

- Harding, Sandra, 1986, *The Science Question in Feminism*. Cornell University Press
  - Haraway, Donna “Situated Knowledges,” In *Simians, Cyborgs, and Women*, New York: Routledge
  - Longino, Helen, 1994, “In Search of Feminist Epistemology,” *Monist*, 77: 472–485.
  - Lloyd, Elisabeth, 1995a, “Feminism as Method: What Scientists Get that Philosophers Don’t,” *Philosophical Topics*, 23: 189–220.
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## Philosophy of Race (2 week unit)

- Mills, Charles (2000). “But What are You Really?” In *Race, Class, and Community Identity*
  - Haslanger, Sally (2000). “Gender and Race: (What) Are They? (What) Do We Want Them to Be?” *Noûs*
  - Andreasen, Robin (2000). Race: Biological Reality or Social Construct? *Philosophy of Science*
  - Hardimon, Michael O. (2003). The Ordinary Concept of Race. *Journal of Philosophy*
  - Hacking, Ian (2005). Why Race Still Matters. *Daedalus*
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## Philosophy of Technology/ Ethics of Technology

- Robson, Gregory, and Tsou, Jonathan (eds.) (2023). *Technology Ethics*. Routledge.
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## Philosophy of AI Systems

- Cummins, Robert, and Pollock, John (eds.) (1991). *Philosophy and AI*. MIT Press.
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## The Extended Mind

- Clark, Andy and David Chalmers, 1998, “The Extended Mind”, *Analysis*, 58(1): 7–19.
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## [Philosophy of Medicine](#)

- Stegenga, Jacob (2018) *To Care and Cure*. University of Chicago Press.
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## [Philosophy of Psychiatry](#)

- Tsou, Jonathan (2021). *Philosophy of Psychiatry*. [Cambridge Elements](#)
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## [Philosophy of Psychology](#) (2 week unit)

- Hatfield, Gary, 1994. “Philosophy of Psychology as Philosophy of Science.” *Philosophy of Science*
  - Thagard, Paul, 2003. *Philosophy of Psychology and Cognitive Science*. Elsevier.
  - Shapiro, Lawrence A. 2005. Can Psychology be a Unified Science? *Philosophy of Science*
- 

## [Naturalist Accounts of Consciousness](#) (2 week unit)

- Nagel, T. 1974. “What is it like to be a bat?” *Philosophical Review*, 83: 435–456.
  - Chalmers, David, 1996. “Facing Up to the Hard Problem of Consciousness.” *Journal of Consciousness Studies*.
  - Churchland, Patricia S. 1996. “The hornswoggle problem”. *Journal of Consciousness Studies*, 3: 402–8.
  - John Bickle, 2003, *Philosophy and Neuroscience: A Ruthlessly Reductive Account*. Springer
- 

## [Social Ontology](#)

- Gilbert, Margaret (1989). *On Social Facts*, Princeton: Princeton University Press.
  - Searle, John (1995). *The Construction of Social Reality*. Free Press.
  - Hacking, Ian (1999). *The Social Construction of What?* Harvard University Press.
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## [Philosophy of Social Science](#)

- Rosenberg, Alexander (1980). *Philosophy of Social Science*. Routledge.
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## *Unity/ Disunity of Science*

- Oppenheim, P. and H. Putnam, 1958, “The unity of science as a working hypothesis”, in H. Feigl et al. (eds.), *Minnesota Studies in the Philosophy of Science*, vol. 2.
  - Fodor, J., 1974, “Special sciences, or the disunity of science as a working hypothesis”, *Synthese*, 28: 77–115.
- 

## *Pluralism / The Stanford School* (2 week unit)

- Suppes, Patrick, 1978. “The Plurality of Science.” *Philosophy of Science*
  - Hacking, Ian, 1996 “The Disunities of The Sciences”, in Galison and Stump 1996: 37–74.
  - Dupré, John 1981. “Natural Kinds and Biological Taxa”, *The Philosophical Review*, 90(1): 66–90.
  - Galison, Peter and David J. Stump, eds., 1996, *The Disunity of Science: Boundaries, Contexts, and Power*, Stanford: Stanford University Press.
  - Cartwright, Nancy, 1999, *The Dappled World*. Cambridge University Press.
- 

## *History of Logical Empiricism*

- Richardson, Alan, and Uebel, Thomas, 2007. *Cambridge Companion to Logical Empiricism*. Cambridge University Press.
- 

## *Philosophy of History/ Narrative Explanation*

- Hempel, Carl, 1966,. *Aspects of Scientific Explanation*. Free Press.
  - Danto, Arthur, 1985. *Narration and Knowledge*. Columbia University Press.
- 

## *Scientific Realism* (2 week Unit)

- van Fraassen, Bas C., 1980, *The Scientific Image*, Oxford: Oxford University Press.
  - Laudan, Larry, 1981, “A Confutation of Convergent Realism”, *Philosophy of Science*, 48: 19–48.
  - Ian Hacking, 1983, *Representing and Intervening*, Cambridge: Cambridge University Press.
  - Frost-Arnold, Greg, 2010, “The No-Miracles Argument for Realism: Inference to an Unacceptable Explanation”, *Philosophy of Science*, 77(1): 35–58.
-

### [Foucault's History of Madness](#)

- Foucault, Michel, 1972. *History of Madness*, Jean Khalfa (ed.), Jonathan Murphy and Jean Khalfa (trans.), New York: Routledge, 2006.
- Gutting, Gary, 2006. "Foucault and the History of Madness." *Cambridge Companion to Foucault*.

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### [History of 20<sup>th</sup> Century American Psychiatry](#)

- Grob, Gerald, 1991. *From Asylum to Community*. Princeton University Press.
- Mayes, Rick, and Horvitz, Allan, 2005, "DSM-III and the Revolution in Psychiatric Classification." *Journal of the History of the Behavioral Sciences*

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### [Philosophy of Science Policy](#)

- Douglas, Heather, 2009. *Science, Policy, and the Value-Free Ideal*. University of Pittsburgh Press.
- Brown, Matthew B., 2004. The Political Philosophy of Science Policy. *Minerva*, 42(1), pp.77-95.
- Lee, Carole, 2015. "Commensuration Bias in Peer Review." *Philosophy of Science*
- Shaw, Jamie, 2023. "Peer Review, Innovation, and Predicting the Future of Science: The Scope of Lotteries in Science Funding Policy." *Philosophy of Science*

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### [Scientific Explanation](#) (2 week unit)

- Hempel, Carl G. 1966. *Aspects of Scientific Explanation*
- Kitcher, Philip, and Salmon, Wesley, eds., 1989, *Scientific Explanation* (Minnesota Studies in the Philosophy of Science, Volume 13), Minneapolis, MN: University of Minnesota Press.
- Khalifa, Kareem, 2017. *Understanding, Explanation, and Scientific Knowledge*. Cambridge University Press.

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### [\\* Featured Philosopher of Science](#)

Students can also choose a unit devoted to the work of particular philosopher of science, such as [Rudolf Carnap](#), [Thomas Kuhn](#), [Paul Feyerabend](#), [Ian Hacking](#), [W.V. Quine](#), [Nancy Cartwright](#), or [Helen Longino](#).

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## Course Schedule

Classes meet on Thursdays, 4:00-6:45 pm, in JO 3.536

Week 1	Aug 24	Introduction to the course
Week 2	Aug 31	Epistemic Injustice
Week 3	Sept 7	Epistemic Injustice in Psychiatry
Week 4	Sept 14	TBA
Week 5	Sept 21	No class
Week 6	Sept 28	TBA
Week 7	Oct 5	TBA
Week 8	Oct 12	TBA, <b>Writing Assignment 1 Due</b>
Week 9	Oct 19	TBA
Week 10	Oct 26	TBA
Week 11	Nov 2	TBA
Week 12	Nov 9	TBA, <b>Writing Assignment 2 Due</b>
Week 13	Nov 16	TBA
Week 14	Nov 23	No class – Thanksgiving
Week 15	Nov 30	TBA
Week 16	Dec 7	Optional Class
Exam week	Dec 14	<b>** Final Paper Due, Thurs, Dec 14 **</b>

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<b>Letter Grade</b>	<b>Range</b>
A	90-100
A-	86-89
B+	82-85
B	78-81
B-	74-77
C+	70-73
C	62-69
F	0-61

### **Academic Integrity and Dishonesty**

The value of this course depends on each student doing his or her own work. Academic dishonesty undermines individual learning and is unfair to the other students in class. Academic dishonesty in any form—including plagiarism, collusion, cheating, and misrepresentation—will not be tolerated and will lead to failure in the course and being reported to the Dean of Students. For information on academic dishonesty, see UTD’s [Academic Integrity](#) and [Academic Dishonesty](#) pages. Students are expected to abide by UTD’s [Student Code of Conduct](#) and the Comet Creed: “As a Comet, I pledge honesty, integrity, and service in all that I do.”

### **Class Attendance and Participation**

Students are expected to attend class regularly and be prepared to discuss the course materials. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your attendance and participation. It also includes engaging in group or other activities during class that solicit your feedback on materials covered in the lectures.

### **Classroom Conduct**

During class, please turn off your phones, and do not send text messages, surf the internet, or check email. During classroom discussions, please be courteous and respectful towards your peers and instructor.

### **Disability**

It is the policy and practice of UTD to make reasonable accommodations for students with properly documented disabilities. However, written notification from the [Office of Student Accessibility](#) (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow one week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact OSA for a confidential discussion. OSA is located in the Student Administration Building, AD 2.224. They can be reached by phone at 972-883-2098, or by email at [studentaccess@utdallas.edu](mailto:studentaccess@utdallas.edu).

### **Academic Support Resources**

If you require academic support, please see the University’s [Student Services and Support](#) and [Student Success Center](#) pages.

*The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.*