

PHILOSOPHY OF SCIENCE – PHIL 150
TIME: MTWRF - 09:45AM-11:15AM
PLACE: PEABODY - 216

Instructor:

Felipe De Brigard

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Caldwell Hall - Office 210D – Office hours: MTWR: 11:30 – 12:30 or by appointment.

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Course overview:

This class will be an introductory exploration of some of the most puzzling questions in the philosophy of science. Broadly construed, the class will have two parts. In the first part—which corresponds to sections A, B and C in the schedule—we will talk about the limits and the structure of scientific explanations, the difference between scientific and pseudoscientific explanations, the nature of the laws of nature, and the role of induction in the process of scientific discovery and confirmation. In the second part we will examine the fascinating problem of realism and anti-realism in philosophy of science. Are electrons real? What about neutrinos? What about mental states? They do figure in our scientific explanations, yet there are controversies as to whether they really exist. As a framework for the problem of scientific realism we will talk about the observation-theory distinction and, finally, we will explore very briefly some possible implications of the realism/anti-realism debate for the problem of evidence in neuroscience.

Evaluation:

Each student will be responsible for a 15 to 20 minute presentation of the text to be discussed in class. The objective of this presentation is to motivate the discussion in class as well as suggesting questions and issues in need of clarification. There will be two papers during the session. Each paper should be between 1.000 and 1.250 words long. The first paper is due July 6th. The second paper is due the day of the final exam, July 26th. The instructor will give you paper topics with enough time in advance. There will be two short in-class exams. The first one will be on July 16th, and the second one will be the final exam, on July 26th. Class participation—which presupposes, but isn't identical to, class attendance—will be evaluated as well. Here is the distribution of the grades' percentages:

Presentation: 20%

First paper: 20%

In-class exam: 15%

Second paper: 20%

Final exam: 15%

Class participation: 10%

Students must follow the regulations stipulated by the honor code (<http://instrument.unc.edu/>).

Text:

Hacking, Ian. 1983. *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science*. Cambridge University Press (ISBN-10: 0521282462)

All other readings will be available on Blackboard (<http://blackboard.unc.edu/>) and/or on electronic reserve via the Undergraduate Library, by typing the course number. (<http://eres.lib.unc.edu/eres/courseindex.aspx?error=&page=search>).

Suggested Schedule:

- A. Science and pseudoscience
 - 1. Introduction (June 21)
 - 2. Popper, K.R. "Science: conjectures and refutations" (June 22)
 - 3. Kuhn, T.S. "Logic of discovery or psychology of research" (June 25)
 - 4. Hacking, I. *RI*. Ch 1-2. (June 26)
- B. Induction and confirmation
 - 5. Hume, D. (Excerpt) & Hempel, C. "The role of induction in scientific inquiry" (From chap. 2, *Philosophy of natural science*) (June 27)
 - 6. Goodman, N. "The new riddle of induction" (I) (June 28)
 - 7. Goodman, N. "The new riddle of induction" (II) (June 29)
 - 8. Hacking, I. *RI*. Ch. 3-5. (July 2)
- C. Explanation and law
 - 9. Hempel, C. "Studies in the logic of explanation" (July 3)
 - 10. Salmon, W. "How we got from there to here" (July 5)
 - 11. van Fraassen, B. "The pragmatics of explanation" (July 6). **First paper due.**
- D. Theory and observation
 - 12. Carnap, R. "The methodological character of theoretical concepts" (July 9)
 - 13. Hanson, N.R. "Observation" (July 10)
 - 14. Fodor, J. "Observation reconsidered" (July 11)
 - 15. Hacking, I. *IR*. Ch. 5-8 (July 12).
- E. Realism and antirealism
 - 16. Maxwell, G. "The ontological status of theoretical entities" (July 13)
 - 17. van Fraassen, B. "Constructive empiricism" (from *The Scientific Image*) (July 16). **In-class exam.**
 - 18. Fine, A. "The natural ontological attitude" (July 17)
 - 19. Hacking, I. *RI*. Ch. 9-11 (July 18)
- F. Reduction and the mind
 - 20. Fodor, J. "Special Sciences" (July 19)
 - 21. Churchland, P. "Eliminative materialism and the propositional attitudes" (July 20)
 - 22. Hacking, I. *RI*. Ch. 12-14 (July 23)
 - 23. Hacking, I. *RI*. Ch. 15-16. (July 24)
 - 24. Final exam. (July 26) **Second paper due.**