

PHIL 224: INTRODUCTION TO THE PHILOSOPHY OF SCIENCE

Professor
E-mail

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Course Description

The aim of this course is to familiarize students with some major issues in the philosophy of science as well as the reasoning skills to discuss science and other topics competently. We will discuss philosophical problems and implications of scientific inquiry, including the demarcation of science, scientific revolutions, scientific values, and the relation of science and society.

There are no prerequisites for this course

Required Reading & Materials

The text for this course is Kent Staley's *An Introduction to the Philosophy of Science*. Other readings will be posted on the course website.

Students will need to prepare a poster. I will accept taped sheets of paper, but UNR Knowledge Center has a wonderful printing studio well worth exploring.

Course Learning Outcomes

- 1) Students will be able to state a thesis about a problem in the philosophy of science, and provide evidence and philosophical argument (including replies to counter-arguments) in its defense.
- 2) Students will be able to interpret at an introductory level the ideas associated with major philosophers and theories in the philosophy of science.
- 3) Students will be able to distinguish better and worse reasoning, and recognize relevant logical relationships and patterns of inference.
- 4) Students will be able to show what is at stake in an abstract philosophical debate in the philosophy of science, and indicate how different philosophical positions have different practical and theoretical implications.

Communication

Please use Canvas or Piazza to contact me/other members of the class for any questions. Failing that, I also respond to email once a week Wednesdays at midnight.

Evaluation

- 30% Final Paper
- 20% Poster Design and Presentation
- 20% Short Essay Exam
- 20% Six (6) Argument Reconstructions
- 10% Class attendance and informed participation

Final Paper

Each paper will be a 2000-4000 word paper on a topic in the philosophy of science. It is expected to make contact with at least one reading from the semester. Only MLA, APA, Chicago, Harvard, or Vancouver styles are acceptable. Google Scholar and many other sources do this for you.

Poster Design and Presentation

You will take the argument from your final paper and represent it visually in a 36" x 48" format.

Short Essay Exam

You will be given a list of questions centered on the class material. You must address some questions of your choice in 300-500 words with careful reference to lectures or readings.

Argument Reconstruction

At any point throughout the semester, you should choose an assigned article, read it, and reconstruct a major argument of the article in no more than 250 words. Use your own words and try to make the logical structure clear as much as possible. These **must be turned in before the class** discussion.

Argument reconstructions will be graded in a **three-point** system. A ✓+ will be given for an accurate, clear, cogent/valid reconstruction of the strongest argument in the article. A ✓ will be given to adequate attempts that miss minor aspects of the argument or . Four or more ✓+s constitute an A for this portion of the class.

Please **think ahead**: many A students have left my class with a C because of lack of foresight. Many C students have failed.

Informed Class Participation

Class is more enjoyable and informative if everyone participates. Two-thirds of this grade will be based on attendance, which will be sporadically taken four minutes after class time, as well as attention, which will be forfeited if you are on your phone, scrolling on your laptop, or asleep.

One third of this grade will be based on speaking up in class, in-person discussions outside of class, or posts to the class website/piazza.

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Office Hours 14:30-15:30 Mon. & Wed.
Office Jones 103D

Grading standards

A 92.5-100 percent	C+ 77-79.4 percent
A- 89.5-92.4 percent	C 72.5-76.9 percent
B+ 87-89.4 percent	C- 69.5-72.4 percent
B 82.5-86.9 percent	D+ 67-69.4 percent
B- 79.5-82.4 percent	D 62.5-66.9 percent
D- 59-62.4 percent	F 0-58.9 percent

Late Work/Makeup Exams

Students have one (1) no-questions-asked four-day extension to use on a single argument reconstructions. Subsequent extensions will require a note from a mortician. Non-medical extensions on paper or poster assignments will face a 10 percent grade penalty.

A Statement on Audio and Video Recording

Everything you say in this class (and probably in most other areas of your life) is being actively recorded by one or more other students. Behave accordingly.

Laptops & Cell Phones

Non-emergency use of cell phones and prolonged scrolling (not typing) on a laptop will cost you participation points. Research shows paper notetaking produces better recall than digital notetaking. If you nevertheless choose to use a laptop to take notes, you must email me your class notes immediately after the end of each class session in order to maintain your document your informed class participation.

Statement on Academic Dishonesty

Each semester, I catch about five percent of my students engaging in academic dishonesty. If you cheat, plagiarize, or otherwise obtain grades under false pretenses, I *will* catch you and burden you with the greatest possible academic penalty. This may include failing the course, referral to the Associate Provost of Academic Planning and Standards, and expulsion. **Ignorance is not an excuse for plagiarism.** Please feel free to contact me or refer to University of Nevada, Reno General Catalog if you are concerned about what constitutes plagiarism.

Tutoring & Writing Center

Your student fees cover usage of the Tutoring Center (784-6801 or www.unr.edu/tutoring-center) and University Writing Center (784-6030 or <http://www.unr.edu/writing-center>). Evidence of using one or both of these centers for class assignments will count as extra credit in this class.

Academic Disabilities

If you believe you have a disability and would benefit from any accommodations, you may wish to contact the Disability Resource Center (Pennington Student Achievement Center 230) as soon as possible to better ensure that such accommodations can be implemented in a timely fashion.

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Class Time Mon. & Wed. 13:00-14:15
Class Location Edmund J. Cain Hall 238
Class Website carlosmariscal.com/224

Schedule	Date	Reading/Assignment
Introduction	Jan. 23	Syllabus
Baby Logic Induction	Jan. 25	Staley ch. 1, "Some problems of induction,"
Baby Logic What is Grue?	Jan. 30	Goodman, "New Riddle of Induction"
Baby Logic Deduction	Feb. 1	Staley ch. 2, "Falsificationism: Science without Induction?"
AND: Falsificationism		AND Popper, "Science: Conjectures and Refutations"
The Vienna Circle	Feb. 6	Staley ch. 4, "Logical Empiricism and Scientific Theories"
Riddles of Deduction	Feb. 8	Staley ch. 3, "Underdetermination" OR Quine, "Two Dogmas of Empiricism" (Second dogma)
The Structure of Science	Feb. 13	Staley ch. 5, "Kuhn: scientific revolutions as paradigm changes"
Normal Science	Feb. 15	Kuhn ch. 3, "The Nature of Normal Science"
AND: Paper Writing		AND Kuhn ch. 1-2 & 4-6 in Outline
Sit in Contemplation Time	Feb. 20	President's Day
Science in Crisis!	Feb. 22	Kuhn ch. 7, "Crisis and the Emergence..." AND Kuhn, ch. 8-13 outline, AND "Postscript"
Fruitful Research Program	Feb. 27	Staley ch. 6, "Lakatos: scientific research programs"
Realism	Mar. 1	Staley ch. 10, "Realism and anti-realism"
Anti-Realism	Mar. 6	Ben-Menahem, "Inference to the Best Explanation"
The Sokal Affair	Mar. 8	Sokal packet (please skim, <i>but not read</i> "Transgressing the Boundaries...")
Explanation	Mar. 13	Staley ch. 11, "Explanation"
Explanatory Fictions	Mar. 15	Bokulich, "Distinguishing Explanatory from Non-Explanatory Fictions"
Funtime philosophizing	Mar. 20	Spring Break
Uninterrupted studying	Mar. 22	Spring Break
Values in Science	Mar. 27	Staley ch. 12, "Values in Science" Take Home Exam Questions Distributed
SSK	Mar. 29	Longino, <i>Science as Social Knowledge</i> , Introduction Take Home Exam Questions Due
Inductive Risk	Apr. 3	Douglas, "Inductive Risk and Values in Science"
Falsification & Replicability	Apr. 5	Nosek et al., "Estimating..." & Gilbert et al. "Comment..."
Negative Results	Apr. 10	Machery, "Power and Negative Results"
	Apr. 12	TBD
Access & Intrinsic Value	Apr. 17	McNull, "My love-hate of Sci-Hub," & Barok et al., "In Solidarity..."
"Born Secret"	Apr. 19	Moreland, "Born Secret"
	Apr. 24	TBD
	Apr. 26	TBD
	Apr. 30	Paper Draft Due
Science and Politics	May 1	Douglas Lecture
AND: Poster Design		
Poster Day!	May 3	Posters Due
Poster Day! and Wrap Up	May 8	
Final Paper Due	May 15	Final Paper Due

SCIENCE AND SOCIETY | BIAS IN SCIENCE | VALUES | EXPLAIN? | REALISM | PROBLEMS W/ POPPER | WHAT IS SCIENCE?