

PHILOSOPHY OF SCIENCE - RECIPES FOR SCIENCE

BASIC INFORMATION

PHIL 20617, Philosophy of Science:

Location and Time: Hammes Mowbray Hall Room 319, TR 11:00 am - 12:15 pm

Number of credits: 3

Term and year: Fall 2022

Instructor's name: Chelsie Greenlee (she/her)

Office location: Malloy Hall 118

Office hours: Monday and Tuesday via Zoom: 3:00pm - 4:00pm

Email Address: chelsie.greenlee@nd.edu

COURSE OBJECTIVES

The objective of this course is to give students a broad overview of both scientific methods and reasoning as well as the kinds of questions that philosophers ask regarding the enterprise of scientific investigation. To do so, we will largely follow the book "Recipes for Science: An Introduction to Scientific Methods and Reasoning," by Angela Potochnik, Matteo Colombo, and Cory Wright. Each week we will look at the material covered in the book as well as journal articles that raise philosophical questions about the methods used in the various domains of science.

REQUIRED STUDENT RESOURCES

Recipes for Science: An Introduction to Scientific Methods and Reasoning, by Angelia Potochnik, Matteo Colombo, Cory Wright, Routledge 2018: ISBN-13: 978-1138920736

All other texts will be provided on Canvas.

ATTENDANCE STATEMENT

Attendance is not required as I will not formally take attendance. However, I will notice if anyone is repeatedly absent which will be reflected in your participation score. Note that classroom discussion will often extend beyond the material covered in our readings, making it difficult to replicate. Please contact me for any documented extenuating circumstances.

ELECTRONICS STATEMENT

Non-essential electronics will not be allowed during class time, including cell phones and computers. There is strong evidence that suggests that the distraction of these items during class time hinders academic performance. Read more here: <https://bokcenter.harvard.edu/technology-and-student-distraction>. I am happy to make exceptions to this policy for any documented needs.

DISABILITY SERVICES

I am happy to accommodate any documented disability that has been registered with the Center for Student Support and Care. More information can be found here:

<https://supportandcare.nd.edu/for-students/current-students/accessibility-support/>

ACADEMIC HONESTY

Students are responsible for compliance with the university's honor code which can be found here:

<https://honorcode.nd.edu/>

ADDITIONAL INFORMATION

I ask that you do not refer to me as Miss, Ms., or Mrs. You are welcome to call me "Chelsie," "professor," or "Professor Greenlee."

EVALUATION AND GRADING

Participation: 10% - The participation component of this class will be graded based on attendance, engagement during class discussions, attending office hours, or emailing me with substantive questions regarding material in the class.

Textbook Exercises: - 30% - Every few weeks I will ask you to answer some of the questions that are found at the end of each chapter in the textbook. These will either be completed as an individual activity or possibly as a part of a small group during class. Grading for this component will be based on participation and effort.

First Paper: - 25% - The first paper for this class is an expository paper where you will reproduce one of the arguments discussed during the first half of the course. I will be looking for a clearly-written explication of your chosen argument. The paper should be roughly 3-5 pages long and will be due right before the mid-term break. I do not care if your paper is exactly 3-5 pages long; I will not deduct points if yours falls outside of this range. While an extremely short or extremely long paper would be surprising, what I most care about is that you clearly articulate the argument. An in-class writing workshop prior to the due date will help you understand the basic components of writing a philosophy paper and will prepare you for what I will expect. Please submit your paper via Canvas without any identifying information such as your name or NDID so that I can grade them anonymously.

Final Paper: - 35% - The final paper will be an argumentative paper where you will explain an issue, describe someone else's argument regarding that issue, and then offer a substantive critique of that argument. I will be looking for a clearly written paper that offers one clear critique of the argument chosen. This paper should be roughly 5-7 pages long. I do not care if your paper is exactly 5-7 pages long; I will not deduct points if yours falls outside of this range. While an extremely short or extremely long paper would be surprising, what I most care about is that you clearly articulate the issue, argument, and your own critique. An in-class writing workshop prior to the due date will help reinforce concepts from the first workshop as well as prepare you for additional expectations for the final paper. Please submit your paper via Canvas without any identifying information such as your name or NDID so that I can grade them anonymously.

COURSE SCHEDULE

RFS = RECIPES FOR SCIENCE

ALL OTHER LISTED READINGS CAN BE FOUND IN THE FILES SECTION ON CANVAS

NOTICE - THIS SCHEDULE IS SUBJECT TO CHANGES BY THE PROFESSOR AND WILL BE ANNOUNCED DURING CLASS AND VIA CANVAS

Date	Required Readings
Tuesday, Aug 23	The Importance of Science - RFS pg. 7-15
Thursday, Aug 25	Section 1: What is Science? - RFS pg. 16-31
Tuesday, Aug 30	Ayer - Language, Truth, and Logic pg. 13-20
Thursday, Sept 1	Popper - Conjectures and Refutations pg. 33-39
Tuesday, Sept 6	Section 2: Experiments and Studies - RFS Chp. 2 pg. 46-61
Thursday, Sept 8	Duhem - Physical Theory and Experiment
Tuesday, Sept 13	Hacking - Experimentation and Scientific Realism
Thursday, Sept 15	<i>Writing Workshop</i>
Tuesday, Sept 20	Section 3: Models and Modeling - RFS Chp. 3 pg.89-101, pg. 117-122
Thursday, Sept 22	Morgan and Morrison - Models as Mediators pg. 10-26
Tuesday, Sept 27	Potochnik - Idealization and the Aims of Science

Thursday, Sept 29	Schelling - Model of Segregation pg. 143-145, pg. 154-159
Tuesday, Oct 4	Elgin - Telling Instances
Thursday, Oct 6	Callebaut - Big Data
Tuesday, Oct 11	Section 4: Patterns of Inference Deductive Reasoning - RFS Chp. 4 pg. 125-138
Thursday, Oct 13	Inductive Reasoning - RFS Chp. 4 pg. 150-163 <i>Paper 1 - Due by 11:59 pm</i>
Tuesday, Oct 18	No Class - Mid-Semester Break
Thursday, Oct 20	No Class - Mid-Semester Break
Tuesday, Oct 25	Section 5: Explaining, Theorizing, and Values - RFS Chp. 8 pg.275-286, pg. 297-307
Thursday, Oct 27	Kitcher - Explanatory Unification
Tuesday, Nov 1	Cartwright - The Truth Doesn't Explain Much
Thursday, Nov 3	Stanford - Chasing Duhem
Tuesday, Nov 8	<i>Writing Workshop</i>
Thursday, Nov 10	No Class - Conference
Tuesday, Nov 15	Douglas - The Structure of Values in Science
Thursday, Nov 17	Longino - Values and Objectivity
Tuesday, Nov 22	Winsberg - Accountability and Values in Radically Collaborative Research
Thursday, Nov 24	No Class - Thanksgiving
Tuesday, Nov 29	Haraway - Situated Knowledges
Thursday, Dec 1	Harding - Stronger Objectivity for Sciences from Below
Tuesday, Dec 6	No Class - Write paper
Thursday, Dec 8	No Class - Write paper
Wednesday, Dec 14	Final Paper Due - 12:30pm