

# PHILOSOPHY OF SCIENCE

Sam Houston State University

PHIL 3372-01 CRN: 41212

M/T/W/Th/F 10-11:50 AM (Remote Delivery)

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**Instructor:** Dr. Thomas Brommage

**Office:** CHSS 347

**Office Hours:** By appt. only

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**Course Description:** Students survey topics in philosophy of science, which may include the logic of explanations in the physical and social sciences, the relationship between science and society, and metaphysical or sociological critiques of science. Course content includes attention to historically prominent examples from social and natural sciences that demonstrate the applicability of important concepts from the philosophy of science.

**Prerequisites:** N/A

**Textbook:** Steve Gimbel, *Exploring the Scientific Method: Cases and Questions* (Chicago, 2011), ISBN: 978-0-22629-483-4. \$35.

## Course Objectives and Learning Outcomes:

1. *Learning fundamental principles, generalizations or theories:* Throughout this course, we will discuss the various approaches to scientific methodology, and the benefits and drawbacks of each.
2. *Learning to apply course material to improve thinking, problem solving and decisions:* Throughout this course, we will be using the various theories to evaluate scientific reasoning within your chosen field of study.
3. *Learning to analyze and critically evaluate ideas, arguments, and points of view:* The papers are designed to understand and evaluate the various methods to understand and evaluate scientific discoveries.
4. *Developing skill in expressing oneself orally or in writing:* The assessments are designed to improve your writing and thinking through the basic terms and distinctions of forms of scientific reasoning, as well as the various forms of scientific explanation.

## Important Dates:

First Day of Classes .....	Thursday, May 28th
Add/Drop Deadline .....	Tuesday, June 2nd
Q-Drop Deadline .....	Tuesday, June 16th
Last Day of Class .....	Thursday June 25th
Course Final .....	Friday June 26th (by midnight)

**Course Outline:** Due dates here are approximate, please refer to [Blackboard](#) for updates. The schedule below will be adjusted to correspond with the pace of the course.

May 28	.....	Course Orientation
May 29	.....	Logic Refresher
June 1	.....	Aristotle, from <i>Posterior Analytics</i> and <i>Physics</i>
June 2	.....	Descartes, from <i>Discourse on Method</i>
June 3	.....	Bacon, from <i>Novum Organum</i>
June 4	.....	Newton, from <i>Principia</i> ; <b>Paper #1</b>
June 5	.....	Mill, from <i>A System of Logic</i> ;
June 8	.....	Whewell, from <i>Novum Organum Renovatum</i>
June 9	.....	Carnap, “Theoretical Procedures in Science”
June 10	.....	Braithwhite, from <i>Scientific Explanation</i> ; <b>Paper #2</b>
June 11	.....	Hume, Problem of Induction from <i>Enquiry</i>
June 12	.....	Paradoxes of Confirmation
June 15	.....	Popper, from <i>The Logic of Scientific Discovery</i>
June 16	.....	Duhem, from <i>Aim and Structure</i> ; <b>Paper #3</b>
June 17	.....	Kuhn, from <i>Structure of Scientific Revolutions</i>
June 18	.....	Lakatos, from <i>The Methodology of Research Programmes</i>
June 19	.....	Spector, “Models and Theories”; <b>Paper #4</b>
June 22	....	Black, “Models and Archetypes”; Geire from <i>Explaining Science</i>
June 23	.....	Feyerabend from <i>Against Method</i>
June 24	.....	Hubbard, “Science, Facts and Feminism”
June 25	.....	Latour, “The Science Wars: A Dialogue”
June 26	.....	<b>Paper #5 and #6; Final Exam Due</b>

**Course Evaluation:** Each Unit contains several parts: (1) a set of readings; (2) one general lecture on the method, as well as individual lectures explaining the readings; and (3) a discussion forum on the method. Each of these should be completed every week. There will also be a course wiki page on Blackboard, and your contributions to that will be part of your overall grade.

The major assignments include six short (500-750 word) response papers which will be due throughout the course. Each of the papers will be based on the case studies in the textbook, using the methodology from the texts discussed in that module to evaluate developments through the history of the science the student chooses. The papers are designed not only to understand the relation between the issues of scientific modeling to issues in the specific field, but also to get you to increasingly develop research skills in your chosen discipline as we progress. The two lowest grades on these papers will not be counted into your final grade. There will also be a cumulative in-class final exam at the end of the course.

The following weighting will be used to calculate your grade:

Papers (best 4 of 6) .....	60%
Discussion Board .....	10%
Wiki Contributions .....	10%
Final Exam .....	20%

Your rounded average of these assignments will determine your grade, based on the following scale:

A .....	100 - 89.5
B .....	89.4 - 79.5
C .....	79.4 - 69.5
D .....	69.4 - 59.5
F .....	59.4 - 0

**Accelerated Summer Schedule:** This course is an intensive, 10-week course on an accelerated summer schedule. Expect daily reading and weekly submission written work due to the nature of this course.

**Writing Enhanced:** This course satisfies for being listed as “writing enhanced” by providing you the opportunity to write as a means to thinking critically about the material and to receive regular feedback on your writing. You will receive regular feedback from the instructor on your writing, including written, substantive feedback on your reading write-ups throughout the term. You will have a chance to incorporate this and any additional feedback from classmates on the written final exam. Written work will account for 80% of the student’s total grade.

**Academic Dishonesty:** Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Please be aware that plagiarized work and any form of academic dishonesty will result in an ”F” on the assignment. [SHSU Academic Policy Statement 810213](#) outlines the definition of academic honesty and the related disciplinary procedures.

You should also familiarize yourself with [Academic Policy Statement 900823](#), which outlines the procedures for students to file an academic grievance should you wish to appeal your grade for reasons other than academic dishonesty. Please read over these policies.

**Course Evaluations:** In accordance with University policy every student will have an opportunity at a specified date and time near the end of the semester to complete a course evaluation form from the IDEA course evaluation system.

For University policies on Student Absences on Religious Holy Days, Students with Disabilities, and Visitors in the Classroom you may view to the official statements on the SHSU Website, <http://www.shsu.edu/syllabus/>

## Expectations, Suggestions and Mandates for an efficient class:

1. Especially true in philosophy more than most other subjects, diligence is important. Some of the reading will be difficult—since we are looking at excerpts from some of the most profound texts in the history of the world. The difficulty of the subject is indirectly proportional to the amount of work put into the course. Expect to have up to fifteen hours a week of reading and thinking about the material in order to get an "A" for the course. *If you do not regularly log in to the course or keep up with the reading, do not expect to pass this class!*
2. In classroom communication, please maintain a respectful demeanor with each other in the class. There will be times when students disagree about a topic discussed. This is a didactic process, not a combative one.
3. Please feel free to make mistakes. We all will from time to time, even your omniscient instructor.
4. Please feel free to make an appointment to discuss the material you do not understand. Waiting until the last moment in the semester to catch up is not advisable. I am excellent at fixing small problems, but horrendous at fixing large ones. The only difference between small and large problems is time.
5. Have fun! The material is only as dry as you make it out to be. Sharpening one's mind can be an exhilarating process.