

PHIL 3372: Philosophy of Science

Sam Houston State University

Spring 2021, CRN: 21036

SHSU Online

Instructor: Dr. Thomas Brommage

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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.

Course Modality (Online): This is designed as a fully online class delivered through SHSU Online. Content delivery will be asynchronous and remote, and all assignments will be completed and graded through the Blackboard system. There will be occasional course meetings scheduled for class review (especially before major assignments are due) but attendance in these will be optional, and recordings will be available for those who are not able to join.

Accelerated Schedule: This is a summer class which is taught on an accelerated 4-week schedule. It is designed to cover the same material a regular semester over a much shorter time frame. Please prepare accordingly, as you will be expected to log in and complete something every day of the course.

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.

Writing Enhanced: This course satisfies the requirements 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 100% of the student’s total grade.

Course Schedule:

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|------------------------|--|
| January 13-15 | Course Introduction |
| January 18-22 | Logic Review |
| January 25-29 | <i>Deductivism: Aristotle, Post. Analytics and Physics</i> |
| February 1-5 | <i>Deductivism: Descartes, Discourse; Paper #1</i> |
| February 8-12 | <i>Inductivism: Bacon, Novum Organum and Newton, Principia</i> |
| February 15-19 | <i>Inductivism Mill, System of Logic; Paper #2</i> |
| February 22-26 | <i>Hypothetico-Deductivism: Whewell, Carnap, Braithwaite</i> |
| March 1-5 | <i>Paradoxes of Confirmation: Hume, Hempel, Goodman</i> |
| March 8-13 | <i>Falsification: Popper; Paper #3</i> |
| March 15-19 | Spring Break (no class) |
| March 22-26 | <i>Confirmation Holism: Duhem, Kuhn</i> |
| March 29-April 2 | <i>Confirmation Holism: Lakatos; Paper #4</i> |
| April 5-9 | <i>Semantic Modeling: Spector, Black</i> |
| April 12-16 | <i>Semantic Modeling: Geire; Paper #5</i> |
| April 19-23 | <i>Critical Views: Feyerabend, Hubbard</i> |
| April 25-30 | <i>Critical Views: LaTour; Paper #6</i> |
| May 3-5 | Review for Final |

Important Dates:

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|-------------------------------|-----------------|
| MLK Holiday (no class) | January 18th |
| Add/Drop Deadline | January 29th |
| Spring Break (no class) | March 15th-19th |
| Q-Drop Deadline | March 26th |
| Good Friday (no class) | April 2nd |
| Course Final | May 10th |

Evaluation: There will be six papers due throughout the course. The best three scores on these papers will be used to calculate your final grade. In addition to the exams, there will be some additional participation assignments including a course wiki and a series of discussion forums on which you will be graded, and a cumulative final exam. More information on requirements and evaluation of the various types of assignments will be available under a separate “Assignment Guidelines” sheet, posted on [Blackboard](#).

The following weighting will be used to calculate your course grade:

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|---------------------------------|-----|
| Papers (best 3 of 6; x 20% ea.) | 60% |
| Course Wiki (5 x 2% ea.) | 10% |
| Discussion Board (10 x 1% ea.) | 10% |
| Final Exam | 20% |

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

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

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 through these policies carefully.

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. Try to complete the week’s work early. Waiting until the due date to begin the week’s assignment is not advisable. Some of the assignments may take several hours to complete.
2. Especially true in philosophy more than most other subjects, diligence is important. Some of the reading will be difficult since we are looking at some of the most profound ideas in the history of the world. The difficulty of the subject is indirectly proportional to the amount of work put into the course.
3. Expect to have up to five hours a week of reading and practice in order to earn an “A” for the course. Additionally, for these reasons, attendance is of vital importance. *If you do not regularly log in or keep up with the reading and exercises, do not expect to pass this class!*

4. Please feel free to make mistakes. We all will from time to time—including your omniscient instructor.
5. 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.
6. Have fun! The material is only as dry as you make it out to be. Sharpening one's mind can be an exhilarating process.