

## PHIL 3372-01: Philosophy of Science

Sam Houston State University

Fall 2020, CRN: 83802

T/R 2:00-3:15 PM, LDB 207

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**Instructor:** Dr. Thomas Brommage

**Office:** CHSS 347

**Office Hours:** M/Tu 11 AM - 12 PM & by appt.

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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.

**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:

|                |  |  |
|----------------|--|--|
| Aug 17-21:     | .....                                  | Course Introduction/Logic Review                         |
| Aug 24-28:     | <i>Deductivism</i> .....               | Aristotle, <i>Post. Analytics</i> and <i>Physics</i>     |
| Aug 31-Sept 4: | <i>Deductivism</i> .....               | Descartes, <i>Discourse on Method</i> ; <b>Paper #1</b>  |
| Sept 7-11:     | <i>Inductivism</i> .....               | Bacon, <i>Novum Organum</i> and Newton, <i>Principia</i> |
| Sept 14-18:    | <i>Inductivism</i> .....               | Mill, <i>System of Logic</i> ; <b>Paper #2</b>           |
| Sept 21-25:    | <i>Hypothetico-Deductivism</i> .....   | Whewell, Carnap, Braithwhite                             |
| Sept 28-Oct 2: | <i>Paradoxes of Confirmation</i> ..... | Hume, Hempel, Goodman                                    |
| Oct 5-9:       | <i>Falsification</i> .....             | Popper; <b>Paper #3</b>                                  |
| Oct 12-16:     | <i>Confirmation Holism</i> .....       | Duhem, Kuhn  |
| Oct 19-23:     | <i>Confirmation Holism</i> .....       | Lakatos; <b>Paper #4</b>                                 |
| Oct 26-30:     | <i>Semantic Modeling</i> .....         | Spector, Black   |
| Nov 2-6:       | <i>Semantic Modeling</i> .....         | Geire; <b>Paper #5</b>                                   |
| Nov 9-12:      | <i>Critical Views</i> .....            | Feyerabend, Hubbard                                      |
| Nov 16-20:     | <i>Critical Views</i> .....            | LaTour; <b>Paper #6</b>                                  |
| Nov 23-27:     | <i>Thanksgiving Holiday</i> .....      | TBA  |
| Nov 30-Dec 2:  | <i>Review</i> .....                    | Review for Final Exam                                    |
| Dec 7-9:       | <i>Final</i> .....                     | <b>Final Exam</b>  |

## Important Dates:

|                                       |                    |
|---------------------------------------|--------------------|
| Add/Drop Deadline .....               | September 1st      |
| Labor Day Holiday (no class) .....    | September 7th      |
| Q-Drop Deadline .....                 | October 23rd       |
| Thanksgiving Holiday (no class) ..... | November 25th-27th |
| Last Day of Class .....               | December 2nd       |
| Study Day .....                       | December 3rd       |
| Course Final .....                    | December 7th       |

**Course Evaluation:** There will be six papers due throughout the course. The best four 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.

The following weighting will be used to calculate your grade:

|                            |     |
|----------------------------|-----|
| Papers (best 4 of 6) ..... | 60% |
| Course Wiki .....          | 10% |
| Discussion Board .....     | 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    |

**Hybrid Delivery:** This course will be delivered through hybrid format. Most traditional content lectures will be provided through Blackboard. We will meet in-person to review assignments and for exam review, but most weeks we will meet only once or twice a week. These in-person meetings will be on an as-needed basis. For more information on the hybrid modality and scheduled meetings will be available on [Blackboard](#) under the “Course Meetings” tab.

**Attendance and Participation:** I will be taking attendance will be taken during class meetings for those in-person meetings, for the purposes of contact tracing. In-person attendance of class meetings is not required, and will not be factored into your grade. Instead, weekly attendance and participation will be measured by activities on Blackboard—the weekly Unit quizzes and the Discussion Board. For more information on these assignments, please see the “Assignment Guidelines” sheet posted on [Blackboard](#).

**100% Remote Option:** Students have the option of completing the course completely remotely. All in-person classes will be recorded and posted on [Blackboard](#), so the student may participate either live from an alternate location, or watched later at the student’s convenience. There will be no grade penalty for not attending in-person meetings.

**COVID-19 Classroom Policies:** In order to maintain the safety of those around you, some sensible policies must be made for your in-class conduct.

- SHSU has a mandatory mask policy on campus. Please do not enter the classroom unless you are wearing a face-covering. During class: if your feet are on the floor, then the mask should be on your face.
- Social distancing will be maintained by spacing chairs in the room several feet apart. If you are sitting too close to your neighbor, I may ask you to move.
- If you are feeling sick or showing symptoms, please do not come to class. Students can participate remotely during class days, so you won’t miss anything that happens on class meeting days.
- Those who test positive are expected to self-report on the [SHSU Coronavirus Reporting](#) page.
- Self-quarantine procedures should be maintained should a student be exposed to someone who tests positive, or travels to a high-risk area or by common carrier.

**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.

**Classroom Conduct:** Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cell phones must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

**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 the official statements on the SHSU Website, <http://www.shsu.edu/syllabus/>

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

1. For those who are attending the class meetings in-person, please arrive to class on time and expect to stay the entire duration of the class. If you are unable to make a particular class meeting, please participate remotely through the Zoom link on Blackboard.
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 thinking about the material in order to earn an “A” for the course. Additionally, for these reasons, attendance is of vital importance. *If you do not watch the content lectures or keep up with the reading and exercises, do not expect to pass this class!*
4. Please come to class prepared (i.e., any reading assigned read, any questions concerning exercises or lectures prepared, etc.)
5. Please be respectful of each other in the class. There will be times when students disagree about a topic discussed in class. This is a didactic process, not a combative one.
6. Due to the great excess of material and limited time in which we must cover, please do not create a disruption for those people who are attempting to learn. Disruptions include blurting out answers, name calling, chiding each other, snoring, etc. Laughing at the Instructor’s jokes is obviously exempted from this policy. In addition, personal audio devices (except those in use to record lectures) and loud crunching snack foods are prohibited from the classroom.
7. Please feel free to make mistakes. We all will from time to time—even your omniscient instructor.

8. 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.
9. Have fun! The material is only as dry as you make it out to be. Sharpening one's mind can be an exhilarating process.