PHIL 3372 03 W Philosophy of Science Fall 2017

Location: CHSS 220 Day and Time: Tuesday and Thursday 2:00-3:20 Instructor: Dr. Maria Botero **Office**: CHSS, room 348

Office Hours: Monday 3-4 pm; Tuesday 3:30-4:30. You do not need an appointment for regular office hours, just drop by. Please consider office hours as part of the class. Your success in this course is important to me. I am happy to work with you if you have any difficulties/questions regarding the class material, studying for the exam or if you just want to discuss the class material, I always enjoy talking about Philosophy! If this time doesn't work we can set up an appointment (please email me three possible meeting times so we can set an appointment that works with our schedules) **Email:** mdb037@shsu.edu

Course Description (Catalogue): A survey of topics in philosophy of science including the logic of explanations in the physical and social sciences, the relations of science to the realm of values, and a look at the "mind-body problem".

Class Description: In this course we will discuss questions related to scientific knowledge and the relationship between science and society. We will discuss questions such as what distinguishes science form pseudo-science, what is the logic with which scientific claims are grounded, what is the relation between theory and empirical data, and what social aspects influence the acquisition of knowledge in science. We will apply theories and questions to concrete examples in natural and social sciences. The course involves formal lectures that will discuss crucial issues from the readings and their relationship with the basic questions explored during the course. It also includes inclass work where students are required to apply the theories explored in class to topics in philosophy of science.

Course Objectives: the aim of the course is to familiarize you with some of the most important **theories** and problems discussed in Philosophy of Science. At the end of this class students should be able to **apply these theories** to understand problems/concepts in science and hopefully make you more thoughtful scientists. This means that the aim of this class is to help you think critically about your own research or the research of others when you apply scientific knowledge in your own discipline.

This is a "W" course, which means that more than 80 percent of your course grade will derive from writing activities designed to help you master course objectives. These activities include a test that includes essay-type questions (60 % of your grade) and inclass writing exercises (20% of your grade). Writing in this course is one of the tools used to help you learn course material; in-class exercises will require you to draft and revise your work, with or without instructor feedback.

Required Textbooks:

Barker G., and Kitcher P. (2014) *Philosophy of Science A New Introduction*, New York: Oxford University Press.

Foss J. (Ed) (2014) *Science and the World. Philosophical Approaches*. Peterborough: Broadview Press.

Attendance Policy: Attendance is mandatory. In accordance with University regulations attendance will be taken every class. If you miss more than three classes I will deduct 1 point from your final grade for each day.

Laptop Policy: No laptops are allowed in class. If you feel that this restriction limits your ability to learn please talk to me.

Grading Plan

Tests (essay-type questions): 60% Exploratory Writing Exercises: 20% Quizzes: 5% Final Exam: 15%

Description:

- **Exams**: These are a combination of multiple choice and essay-type questions. Essaytype questions are not "just opinions." You need to use the theories examined in class and presented on your readings. Failure to use these theories will result in a nonpassing grade. The best way to prepare for your tests is to complete all the in-class exercises.
- **In-Class Exercises:** These are a combination of individual and group writing exercises. The instructions for the in-class writing exercises will be given in-class. On the appointed date (a schedule of assignment submission, rubric and blank log form will be posted on Bb) you are required to submit all of the writing exercises done until that point. You are also required to complete the log and staple this log to your folder. There are no make-ups for these exercises; if you miss a class you need to make sure that by that day you have completed the missed exercise. All of these exercises are designed to prepare you for the essay-type questions you will encounter in your tests.
- **Quizzes:** Multiple choice. If after going through the reading you do not feel prepared to take a quiz (for example you found the reading too difficult), you may submit a "Quiz-Substitution" the day of the quiz at the time of the quiz. These are a series of short answers that would be graded instead of your quiz (see Bb for details).
- Final Exam: The final exam will be comprehensive. Illness on the day of the exam: If the student has a <u>very good reason</u> and supporting documentation (i.e. doctor's note, death in the family), s/he can apply to the course director for a makeup exam <u>within 2 business days</u> of the missed exam.

Grading Scale: A 90-100, B 80-89, C 70-79, D 60-69, F below 60

Standard Policies: Students should consult the standard policies in the following link http://www.shsu.edu/syllabus/

Please consult this webpage for a complete description. The following is a brief description of some of the main points of the standard policies plus some additions pertinent to this class: (1) <u>NOTICE TO PERSONS WITH A DISABILITY</u>: Every student is entitled to a meaningful and stimulating learning experience. Disabled students are strongly encouraged to avail themselves of the services provided by the <u>Office of</u> <u>Services for Students with Disabilities in the SHSU Lee Drain Annex (telephone 936-294-</u>

<u>3512, TDD 936-294-3786). Please contact this office to request accommodations.</u> Please keep in mind that no accommodation can be made until you register with this office and that there will be no retroactive accommodations. However, if your paperwork/diagnosis is in progress please talk to me (2) <u>ACADEMIC DISHONESTY:</u> Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. If during a test the student engages in a behavior not acceptable during a test (for example, consult your cellphone, a textbook or another student's test) the student will automatically get a cero for that test. Cheating on a test is not worth the risk! (3) <u>CLASSROOM RULES OF CONDUCT</u>: Students are expected to assist in maintaining a classroom environment that is conducive to learning because of the topics discussed in this class it is crucial that we maintain a respectful environment.

Tentative Reading Schedule

This is not a final reading schedule; changes may be incorporated during the class. The order of the readings will remain the same; however, dates may change. Check with your classmates or instructor if you miss class. The student is responsible for submitting assignments on the right date.

All of the chapters listed as **PS** belong to *Philosophy of Science a Contemporary Introduction* and **SW** to *Science and the World*.

Welcome and Introduction

August 24	Introduction and welcome
August 29-31	Harvey
September 5	1. What is Philosophy of Science?
	PS Chapter 1, p.1-11
September 7	2. The Scientific Method
	Rationalism vs. Empiricism
	• PS p. 12-16
	• SW Chapter 1: Newton, I.
	"General Scholium" p.7-14
	Deduction vs. Induction
	In-class exercise
September 12-14	3 The Problem of Induction and one possible solution
	• PS p. 16-24

	• SW Chapter 5 p. 73-87
	In-class exercise
	Sep 12 Quiz
	Sep 14 Quiz
September 19	First Test
September 21	4 Confirmation
	Hypothetico-Deductive Method
	SW Chapter 2: Hempel, CG. "Scientific Inquiry: Invention
	and Test" p. 37-54
September 26	Problem with the HD method and Possible solution:
	Probability
C (1 20	PS p. 24-29
September 28	Probability: Bayes Theorem
Octobor 2	PS p. 29-34
October 3	No class, assignment posted on BD Folder Submission (including assignment posted on Bb)
October 5-10	Folder Submission (including assignment posted on BD)
	5.1 Parts of a Scientific Theory p. 34-36
October 12-17	5.2 Realism vs. Instrumentalism
	SW Chanter 11 Bas van Frassen "Arguments Concerning
	Scientific Realism" n 205-222
	SW Kent A. Peacock "Realism in a Quantum World". p. 241-
	268
	Oct 12 Quiz
October 19	Second Test
October 24	6. Explanation
	6.1. Causal Explanation
	SW Chapter 2 David Hume "Skeptical Doubts Concerning the
	Operations of Understanding" p. 19-36
October 26	SW Chapter 4 Israel Scheffler "Explanation" p. 55-72
	Quiz
October 31	6.2 Hempel Covering-Law model
No	PS 38-47
November 2	6.3 WoodWard Theory of Causality
November 7	6.3 Explaining Inrough Probability
November 0	III-Class exercise
NOVEILIDEL 9	SW Chapter 10: Leffrey Foss "Science Maps and Models" n
	185-204
November 10	Last day to drop a course with a " Ω "
November 14	Third Test
November 16	
	7. Critical Voices

	PS Chapter 4 p.78-103
	SW Chapter 6 Thomas Kuhn "The Structure of Scientific
	Revolutions" p. 93-116
November 21	7.2 Feminist and Cultural Critiques
	PS Chapter 5 p. 106-134
November 23	No class-Thanksgiving Holiday
November 28	Science, Values, politics and Religion
	PS Chapter 6 p. 136-162
	SW Chapter 18 Michael Ruse Creationism Considered" p. 353-
	386
November	Last day of class-review for the final exam
30	
December 5, 3:30	Final Exam
pm	