

SAMPLE SYLLABUS: PHILOSOPHY OF SCIENCE

INSTRUCTOR: SAMUEL A. TAYLOR
E-MAIL: SAMUEL.TAYLOR@AUBURN.EDU
CELL PHONE: (319) 333-6378
OFFICE: XXXX
OFFICE HOURS: XXXX
WEBSITE: WWW.SAMUEL-A-TAYLOR.COM

COURSE: PHIL XXXX
CREDIT HOURS: 3
PREREQUISITES: NONE
SEMESTER: SPRING 2016
MEETING TIME: XXXX
CLASSROOM: XXXX

COURSE DESCRIPTION: Science is often given a special status regarding its ability to provide us with knowledge about the world. Should science be given such status? What about science, or its method, makes it particularly well suited for providing us with knowledge about the world? Does science aim to give us a true description of the world? Or, does science merely attempt to provide us with tools that are especially useful in making predications? In this course we will investigate these, and related, questions regarding the nature of science while emphasizing the difference between descriptive and prescriptive views of science. After presenting a *brief* historical background, we'll consider various themes associated with a hugely influential perspective on science from the early 20th century: logical empiricism. In this section we'll be particularly interested in the nature of scientific explanation, the metaphysics of laws of nature, and how scientific theories are confirmed. We'll then shift our focus to the influential works of Thomas Kuhn and his so called "historical approach" to the philosophy of science. This will lead into our final section where we consider the realism vs. anti-realism debate in the philosophy of science, followed by a consideration of realist and anti-realist approaches to specific case studies (e.g. natural kinds, gender, and race).

TEXTS: There one *required* texts is Curd, Cover, and Pincock's *Philosophy of Science: The Central Issues* 2nd edition (W.W. Norton & Company, 2012). ISBN: 9780393919035

Students interested in looking at additional reading are advised to start by look at either the Internet Encyclopedia of Philosophy (www.iep.utm.edu) or the Stanford Encyclopedia of Philosophy (www.plato.stanford.edu) – the former is the less technical. *DO NOT* consult sources such as Wikipedia, blogs, online forums (e.g. reddit), or the dictionary for philosophical insight. These sources have not been vetted; their quality varies *widely* and they are *overall* unreliable.

INSTRUCTOR E-MAIL: On normal weekdays I will dedicate 2:00pm – 3:00pm to responding to student e-mail. On weekends and holidays I won't have a dedicated time for responding to e-mail but I will strive to respond within 24 hours. Plan accordingly.

CLASSROOM ENVIRONMENT AND STUDENT EXPECTATIONS:

- *E-mail and class website:* Check your e-mail and the class website at least once a day. Also, there will be discussion forums on the class website. These are meant to provide a venue for students to continue discussion beyond class, or to help you study with your fellow students. Be respectful of one another on these forums. You are *NOT* required to post anything to these online forums.
- *Come prepared:* Come to class prepared to discuss the topic for the day. This involves bringing your textbooks, bringing materials for taking notes, and doing the assigned readings *before* class. Philosophy is a dialogical activity; you should always be ready to engage in discussion about the topics with your teachers, classmates, and the authors of the readings.
- *Careful reading:* Philosophical writing can be dense and difficult to understand. Read *carefully*. Do not just skim the reading. Actively engage with the text while you read it. Underline or highlight

important passages, write summaries and questions in the margins, copy down crucial definitions and distinctions, think of examples illustrating the ideas you're reading about, and attempt to reconstruct any arguments you find. You might also have to do read the selections multiple times.

- *Technology in class:* Using technology in ways *unrelated to the course* is prohibited. In fact, unless you have a special need of this technology, I *recommend* that you do not use a laptop even for taking notes. Research suggests that taking notes with paper and pencil helps students to better process, retain, and understand the information they receive in their classes.
- *Etiquette:* We will be discussing some controversial topics to which many of you might have a strong emotional connection over which reasonable people will disagree. Take care to articulate your views and arguments in ways that are respectful to your fellow students. Be especially careful when posting on the online discussion forum.

LEARNING OUTCOMES: By studying these topics students will gain a wide range of knowledge and skills whose value extends well beyond the classroom. Given that you put in the required time and effort, by the end of this course you will be able to:

1. Evaluate simple ordinary language arguments for validity, soundness, strength, and cogency.
2. Interpret, paraphrase, and explain difficult passages of philosophical prose and argumentation.
3. Reconstruct arguments found in the text into premise/conclusion format.
4. Construct cases for use with the counterexample method, and utilize different strategies for responding to supposed counterexamples.
5. Articulate the fundamentals of the philosophical theories and ideas within the Philosophy of Science.
6. Appreciate and appraise the strength and weaknesses of these competing philosophical theories.
7. Construct your own arguments challenging or defending philosophical positions.
8. Appreciate weaknesses and anticipate objections to your own arguments.

GRADING SCALE:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
100-93	92-90	89-87	86-83	82-80	79-77	76-73	72-70	69-67	66-63	62-60	59-0

GRADING BREAKDOWN:

ASSIGNMENT	PERCENT OF FINAL GRADE	TOTAL
Exam 1:	13%	13%
Exam 2:	13%	26%
Exam 3:	13%	39%
Paper 1:	13%	52%
Paper 2:	13%	65%
Paper 3:	13%	78%
Class Presentation:	10%	88%
In-Class Activities	12%	100%

EXAMS 1-3: These exams will be take-home tests that will consist of short answer and essay questions of the material covered in the readings and in class. *Exams are NOT cumulative.*

PAPERS 1-2: The first two papers will be short 4-5 pages (double-spaced) papers developing your own argument defending or criticizing one of the epistemological views discussed in class.

PAPERS 3: The 3rd paper will be a final 8-10 page research paper on a topic of your choosing, due at the final exam time. You will be required to present an issue, give your own argument, and anticipate and respond to potential objections.

CLASS PRESENTATION: Each student will choose a day to give a 15-minute presentation on the assigned reading for that to the rest of the class. In this presentation I want you to summarize *one* view or argument given in the text, raise questions about this part of the text, and offer at least one worry for the view or argument given.

IN-CLASS ACTIVITIES: The in-class activities will consist of various forms of both individual and group work. These might consist of worksheets, free writing sessions, directed writing sessions, group work, writing test questions, peer-review projects, etc. These assignments are my way of grading attendance and participation, and are my way to make sure you are keeping up with the readings.

- Each in class assignment will be graded on a 0-2 point scale
 - 0 = Assignment wasn't attempted
 - 1 = Assignment shows only minimal effort or a failure to do the readings.
 - 2 = Assignment shows good effort and good-faith attempt to do the readings.
- The lowest three in-class assignments will be dropped at the end of the semester.

LATE WORK AND MAKE-UP POLICY: *Unexcused* late papers will receive a 3% grade reduction for each day that they are late. *Unexcused* missed tests/exams will receive a 3% grade reduction for each day that passes prior to taking a make-up exam. Since in-class activities are my way of tracking attendance and participation, these can *only* be made up when you have an excused absence. If you have an *excused* absence during an exam or in-class assignment, you should contact me within a week to initiate arrangements to make up the work.

ATTENDANCE AND PARTICIPATION POLICY: Attendance and participation in class will be factored into your grade via the in-class activities as explained above. See the student handbook for more information on the University's attendance policy. NOTE: leaving early for a scheduled university holiday or break is *NOT* an excused absence. Schedule your rides and flights accordingly.

ACADEMIC HONESTY: I will use turnitin.com. Plagiarism and cheating will not be tolerated. Plagiarism and cheating will result in a zero for the assignment and will be reported to the university. I expect that you understand what constitutes plagiarism, but if you are unsure then please see the university's student academic integrity webpage (see link below). *Trust me... Plagiarism is not in your best interest; I will catch you!*

NOTES ABOUT THE SCHEDULE: A *tentative* schedule for the course can be found on the next page. Readings marked with a "*" can be found on the course website.

SCHEDULE

WEEK 1 Historical Roots	* The Ancient and Medieval Periods	
WEEK 2 Historical Roots	* The Scientific Revolution * The Received View	
WEEK 3 Explanation	Hempel: Two Basic Types of Explanation * <i>Selections from</i> S.E.P. article on Scientific Explanation	<i>Friday: Paper 1 Due</i>
WEEK 4 Explanation	Kitcher: Explanatory Unification	
WEEK 5 Explanation	Nagel: Issues in the Logic of Reductive Explanations	<i>Wednesday: Test 1 Due</i>
WEEK 6 Laws of Nature	Ayer: What is a Law of Nature? Dretske: Laws of Nature	
WEEK 7 Induction, Confirmation, & Underdetermination	Lipton: On Induction Salmon: Rational Prediction	
WEEK 8 Induction, Confirmation, & Underdetermination	Duhem: Against Crucial Experiments Goodman: The New Riddle of Induction	<i>Monday: Paper 2 Due</i>
WEEK 9 Induction, Confirmation, & Underdetermination	Hempel: Criteria of Confirmation and Acceptability Laudan: Demystifying Underdetermination	<i>Friday: Test 2 Due</i>
WEEK 10 Kuhn	*Kuhn: Structure of Scientific Revolutions Chs. V-X	
WEEK 11 Kuhn	Kuhn: Objectivity, Value Judgment, and Theory Choice	
WEEK 12 Realism vs. Anti-Realism	Laudan: A Confutation of Convergent Realism Van Fraassen: Arguments Concerning Scientific Realism	
WEEK 13 Realism vs. Anti-Realism	Boyd: The Current Status of Scientific Realism	<i>Friday: Thesis Due</i>
THANKSGIVING BREAK		
WEEK 14 Case Studies	*Leslie: Essence and Natural Kinds – When Science Meets Pre-Schooler Intuition	<i>Friday: Argument Summary Due</i>
WEEK 15 Case Studies	*Haslanger: Gender and Race – (What) Are They? (What) Do We Want Them to Be?	
FINAL EXAM & PAPER DUE		