Chapman University
Fall 2021

PHIL321: Philosophy of Science
Tuesday/Thursday 2.30-3.45pm in Beckman Hall 206

Instructor: Kelvin McQueen
Email: mcqueen@chapman.edu
Office hours: email to schedule meeting.

Course Description
Philosophy of science explores the philosophical questions that arise when we reflect on the nature of the scientific method and the knowledge about the universe that it produces. The course is both historical and philosophical. Historically, we consider how the scientific method has evolved over time, from the ancient Greeks, through the Scientific Revolution, to the present age. Philosophically, we consider foundational questions concerning the scope of scientific knowledge, the demarcation of science from pseudo-science, theory confirmation and falsification, thought experiments, laws of nature, and whether there can be a complete science of the human mind. (3 credits. No restrictions.)

Course Delivery
Lectures are every Tuesday and Thursday 2.30-3.45pm. The lectures are recorded. We will cover 14 topics, one for each week of class. You will find 14 corresponding modules on canvas. The Tuesday lecture will typically be a lecture on that week's topic. You will need to have read the assigned reading for that lecture beforehand. The Thursday lecture will typically involve discussion about that week's topic. Each week you will also contribute to discussion boards for a portion of your grade. The remainder of your assessment will require you to write papers, details on page 3 below.

Readings
You do not need to purchase a textbook. Weekly readings will be made available on the Modules section on Canvas. Most of our readings come from the following sources:

> JL: James Ladyman. *Understanding Philosophy of Science*. Routledge, 2002. PDF
> CH: Chris Hitchcock. *Contemporary Debates in Philosophy of Science*. Blackwell, 2004.

The acronyms JL and CH are used on the schedule on the next page.

Additional readings can be found in the bibliographies of these readings. You will also find useful the Stanford Encyclopaedia of Philosophy: https://plato.stanford.edu/. I am always happy to help students find additional readings on topics of interest.

In preparation for writing philosophical essays and grading criteria you should read:
http://www.jimpryor.net/teaching/guidelines/writing.html
The following is a helpful guide to general academic writing:
http://www.earlymoderntexts.com/assets/jfb/bengor.pdf

Schedule and required readings

Week	Tuesday lecture	Thursday lecture
1	Aug 31 *Topic:* What is science?	September 2 *Topic:* Scientific method. *Required reading*: JL: ch1 (pp.11-30)
2	September 7 *Topic:* The problem of induction. *Required reading*: JL: ch2 (pp.31-52)	September 9 *Topic:* Solutions to the problem of induction. *Required reading*: JL: ch2 (pp.40-61)
3	September 14 *Topic:* Falsification. *Required reading*: JL: ch3 (pp.62-81)	September 16 *Topic:* Problems with falsificationism. *Required reading*: JL: ch3 (pp.81-91)
4	September 21 *Topic:* Scientific revolutions. *Required reading*: JL: ch4 (pp.93-109)	September 23 *Topic:* Scientific revolutions. *Required reading*: JL: ch4 (pp.109-123)
5	September 28 *Topic:* Scientific realism. *Required reading*: JL: ch5 (pp.129-146)	September 30 *Topic:* Scientific realism. *Required reading*: JL: ch5 (pp.146-157)
6	October 5 *Topic:* Constructive empiricism. *Required reading*: JL: ch6 (pp.185-194)	October 7 *Topic:* Constructive empiricism. *Required reading*: van Frassen
7	October 12 *Topic:* Do thought experiments transcend empiricism? (Yes) *Required reading*: CH: ch1 (Brown)	October 14 *Topic:* Do thought experiments transcend empiricism? (Yes) *Required reading*: Brown cont.
8	October 19 *Topic:* Do thought experiments transcend empiricism? (No) *Required reading*: CH: ch2 (Norton)	October 21 *Topic:* Do thought experiments transcend empiricism? (No) *Required reading*: Norton cont.
9	October 26 *Topic:* Are there laws in social sciences? (No) *Required reading*: CH: ch7 (Roberts)	October 28 *Topic:* Are there laws in social sciences? (No) *Required reading*: Roberts cont.
10	November 2 *Topic:* Are there laws in social sciences? (Yes) *Required reading*: CH: ch8 (Kincaid)	November 4 *Topic:* Are there laws in social sciences? (Yes) *Required reading*: Kincaid cont.
11	November 9 *Topic:* The free will debate *Required reading*: Ney: ch9 (pp.239-246)	November 11 *Topic:* The free will debate *Required reading*: Ney: ch9 (pp.246-257)
12	November 16 *Topic:* Is free will a testable hypothesis? (No) *Required reading*: Northcott	November 18 *Topic:* Is free will a testable hypothesis? (No) *Required reading*: Northcott cont.
Thanksgiving Break November 22-27		
13	November 30 *Topic:* Is free will a testable hypothesis? (Yes) *Required reading*: Pinto & McQueen	December 2 *Topic:* Is free will a testable hypothesis? (Yes) *Required reading*: Pinto & McQueen cont.
14	December 7 *Topic:* TBA *Required reading*:	December 9 *Topic:* TBA *Required reading*:

Assessment and grading

Participation. 10%
You receive 10% simply for attending all lectures and participating constructively in discussions. You are allowed three unexcused absences. Every subsequent unexcused absence will cost 1%. Failure to participate in discussion activities will also cost 1% per activity.

Weekly discussion board contributions. 25%
Beginning week 2, you will be required to make **at least two** discussion board contributions per week. Links to discussion boards are found in the Canvas modules. Each week, you will **(1) respond to a posted prompt** (try to do this early in the week) and then **(2) provide constructive feedback** on someone else's response to the prompt. You have until Saturday night at midnight each week to complete your two contributions. **Late contributions will not be graded**. **Missed contributions cannot be made up**.

Short paper. **Due: Sunday 11.59pm October 17**. 25%
Write a philosophical paper on either (i) the problem of induction, (ii) falsificationism, (iii) scientific revolutions, (iv) scientific realism, or (v) constructive empiricism.
500-700 words. Upload to Canvas before deadline.

Long paper. **Due: Tuesday 11.59pm December 14**. 40%
Write a philosophical paper on either (i) do thought experiments transcend empiricism? or (ii) are there laws in social sciences? or (iii) is free will a testable hypothesis? (A bibliography is necessary and must include at least 6 references including references to readings from multiple modules.)
1500-2500 words. Upload to Canvas before deadline.

General note: No late papers will be accepted without a doctor's signed medical excuse or without proof of some other serious emergency. If a student is going to miss a paper deadline, he/she must contact the instructor in advance to give a reason. Proof of the student's excuse is due asap.

Final grades will be assigned as follows:

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

No electronic device policy
Due to their detrimental effect on learning, laptops, tablets, and similar devices are not permitted during class. Failure to comply may result in the loss of participation grades. If special circumstances require the use of such devices at some point during the semester, you must clear this with me in advance and provide the relevant documentation.

Mask Policy
As of 8/31/2021 face coverings are required for faculty, staff and students in all indoor facilities unless alone in a private office with the door closed, or while actively eating or drinking. Until this policy changes, an approved accommodation is required to not wear a face covering during class.

Syllabus Change Policy and Course Schedule
Except for changes that substantially affect implementation of the evaluation (grading) statement, the above syllabus is a guide for the course and is subject to change with advance notice.

Lectures are Recorded
Software will be used to record live class discussions. As a student in this class, your participation in live class discussions will be recorded to assist those who cannot attend the live session, or to serve as a resource for those who would like to review content that was presented. These recordings will be made available only to students who are enrolled in the class, and only during the period in which the course is offered.

Academic Integrity Principle Statement
Chapman University is a community of scholars that emphasizes the mutual responsibility of all members to seek knowledge honestly and in good faith. Students are responsible for doing their own work, and academic dishonesty of any kind will be subject to sanction by the instructor/administrator and referral to the University's Academic Integrity Committee, which may impose additional sanctions up to and including expulsion. For further information see: chapman.edu/academics/academic-integrity/

Students with Disabilities
In compliance with ADA guidelines, students who have any condition, either permanent or temporary, that might affect their ability to perform in this class should inform the instructor at the beginning of the term. The University no longer makes the initial contact with professors--the student does. The University will determine what accommodations are suitable based on documentation and individual student needs, and students will email this information, in pdf form, to their teachers. Contact Ms. Andrea Tedford, the Counselling & Disability Services coordinator, at atedford@chapman.edu or 714-516-4520 (410 N. Glassell St.). The Disability Services Specialist, Mr. Jason Alexander, will then work with faculty members, who are asked to provide appropriate accommodations for these students. The granting of any accommodation will not be retroactive and cannot jeopardize the academic standards or integrity of the course.

Course objectives
By the end of this class you should:
1. Have gained a strong understanding of the scientific method, how it has evolved over time, and how it generates knowledge.
2. Have gained a strong understanding of what science is and be able to demarcate science from pseudo-science.
3. Be able to identify the main positions in contemporary philosophy of science relating to the scientific method, demarcation, and a host of other foundational issues.
4. Have gained familiarity with many sciences through the various examples used to illustrate controversies in philosophy of science.
5. Be able to formulate your own views about topics in contemporary philosophy of science and defend them orally (in class discussion) and in writing (in assessments).
6. Be able to evaluate the views of your peers in a constructive and insightful manner.

Philosophy Program Learning Outcomes (PLO's)
PLO1: Writing
Ability to state and support a thesis, apply knowledge of critical reasoning, accurately interpret philosophic sources, and clearly communicate a balanced account in writing.
PLO2: Critical Reasoning
Ability to construct and analyze complex arguments, and distinguish good reasoning from bad.
PLO 3M&E: Metaphysics & Epistemology.
Ability to demonstrate knowledge of some of the most important figures and theories in metaphysics and epistemology.
PLO 3L: Logic
Ability to demonstrate knowledge about and skill in deductive or inductive reasoning.

General Education Learning Outcomes

7VI: Values and Ethical Inquiry: Students will be able to articulate how values and ethics inform human understanding, structures, and behavior.

7SI: Social Inquiry: Students will be able to identify, frame and analyze social and historical structures and institutions in the world today.