

PHIL 220 A01 - Fall 2019 Introduction to Philosophy of Science

Instructor: Eric Hochstein

CRN: 12534

Time: Tuesday/Wednesday/Friday 1:30 PM – 2:20 PM

Place: TBD

Office Hours (in Clearihue B330): Wednesday, 3:00-5:00 pm; and by appointment

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Description: Science is considered to be our best and most effective way of learning about the world. But what exactly differentiates science from non-science, and what are its limits? In this course, we will explore fundamental philosophical questions regarding the nature of science, and how it relates to more traditional philosophical questions regarding metaphysics and epistemology. More specifically, we will explore topics like: what is the demarcation between science from non-science? Does science get closer to truth as it progresses? Can the theories of one science (e.g. psychology) be reduced to theories of another (e.g. neuroscience)?

Structure: The course comprises three lectures (50min) per week, the contents of which will be based on the course readings. The course will proceed primarily through lectures and discussions.

Readings for the class will all be uploaded onto the course website.

Evaluation: The course will be graded as follows:

- 2 mid-terms, worth 15% and 25%
- A term paper 25% (3-10 double-spaced pages);
- A final examination worth 35%.

Policy on assignments, tests, and term papers: The term papers are due in class, **in hard copy**, on the announced deadline. Late papers will receive a deduction of 5% per day until handed in. Any exam missed without documentation of illness or family emergency will receive a 0.

Important to Note: It is expected that students will prepare for and attend class regularly. Students are encouraged to consult the instructor with any problems or concerns about the course **early** in the semester.

Grading System:

Percentages	Letter Grade	Grade Point
90 – 100	A+	9
85 – 89	A	8

80 – 84	A-	7
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An A+, A, or A- is earned by work which is technically **superior**, shows mastery of the subject matter, and in the case of an A+ offers original insight and/or goes beyond course expectations. Normally achieved by a minority of students

77 – 79	B+	6
73 – 76	B	5
70 – 72	B-	4

A B+, B, or B- is earned by work that indicates a **good** comprehension of the course material, a good command of the skills needed to work with the course material, and the student's full engagement with the course requirements and activities. A B represents a more complex understanding and/or application of the course material. Normally achieved by the largest number of students.

65 – 69	C+	3
60 – 64	C	2

A C+ or C is earned by work that indicates an **adequate** comprehension of the course material and the skills needed to work with the course material and that indicates the student has met the basic requirements for completing assigned work and/or participating in class activities

50 – 59	D	1
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A D is earned by work that indicates **minimal** command of the course materials and/or minimal participation in class activities that is worthy of course credit toward the degree.

0 – 49	F	0
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F is earned by work, which after the completion of course requirements, is **inadequate** and unworthy of course credit towards the degree.

Interpretation of these grade definitions is up to the discretion of the instructor. If you receive a grade during the course that you believe is unfair, please begin by discussing the matter with the instructor (or TA) in a respectful, open-minded manner. Rest assured that if you still believe the grade you received is unfair you can appeal the matter to the chair of the department.

For additional information regarding grades, please see pp. 51-53 of the most recent (September 2018) edition of the Uvic Undergraduate Calendar.

All evaluations of tests and assignments will be calculated according to percentage scores. Letter grades and grade point scores are listed purely for reference.

Final examinations are the property of Uvic and are not returned. They are available for viewing at the Records Office according to Uvic procedures and regulations (pp. 49-51 of the calendar).

Uvic is committed to providing a safe, supportive learning environment for all members. Further information regarding Uvic policies on human rights, equity, discrimination and harassment are located in the Uvic calendar (p. 15), but if you have any particular concerns in our course please do not hesitate to contact me.

Tentative Schedule of Readings:

Week 1 (Sep 8 & 10): Introduction and Basics

No Readings for This Week

Week 2 (Sep 14, 15 & 17): Demarcating Science from Non-Science

Readings:

- Popper, K. "Science: Conjectures and Refutations", Read Sections I & II (pages 1-10)
- Thagard, P. "Why Astrology Is a Pseudoscience",

Week 3: (Sep 21, 22 & 24): Scientific Explanation & The D-N Account

Readings:

- Hempel, C. & Oppenheim, P. "Studies in The Logic of Explanation", Read Part I (pages 135-146)

Week 4 (Sep 28, 29 & Oct 1): Scientific Explanation & The Mechanist Account

Readings:

- Craver (2006) "When Mechanistic Models Explain"

Week 5 (Oct 5, 6 & 8): Scientific Realism vs Scientific Anti-Realism (Part 1)

Midterm 1: Oct 5th

Readings:

- Okasha, "Realism & Anti-Realism"
- Hacking, I. "What is Scientific Realism?"

Week 6 (Oct 12, 13 & 15): Scientific Realism vs Scientific Anti-Realism (Part 2)

Readings:

- Van Fraassen, B. "Arguments Concerning Scientific Realism"

Week 7 (Oct 19, 20 & 22): Reductionism vs Anti-Reductionism (Part 1)

Term Paper Assigned Oct 15

Readings:

- Churchlands, "Intertheoretic Reduction: A Neuroscientist's Field Guide"

Week 8 (Oct 26, 27 & 29): Reductionism vs Anti-Reductionism (Part 2)

Readings:

- Fodor, J. “Special Sciences”

Week 9 (Nov 2, 3 & 5): Science and the Search for Laws

Readings:

- Cartwright, N. “Do the Laws of Physics State the Facts?”

Week 10 (Nov 9): Midterm & Reading Week

READING WEEK: No Classes November 10th or 12th

Midterm 2: November 9th

No Additional Readings for This Week

Week 11 (Nov 16, 17 & 19): Science and the Search for Natural Kinds

Term Paper Due Nov 19

Readings:

- Havstad, J. “Messy Chemical Kinds”

Week 12 (Nov 23, 24 & 26): Scientific Representation

Readings:

- Roskies, A. “Are Neuroimages Like Photographs of the Brain?”

Week 13 (Nov 30 & Dec 1): The Quine-Duhem Thesis

No class Friday, December 3 (National Day of Remembrance and Action on Violence Against Women)

Readings:

- Darling, K. “The complete Duhemian underdetermination argument: scientific language and practice”

Note on Avoidance of Academic Offenses:

All students registered in the course are expected to know what constitutes an academic offence, to avoid committing academic offenses, and to take responsibility for their academic actions. When the commission of an offense is established, it will be acknowledged by disciplinary penalties. If you need help in learning how to avoid academic offenses such as plagiarism, cheating, and double submission, or if you need clarification of aspects of the discipline policy, ask your course instructor for guidance. You can find the university’s Policy on Academic Integrity here:

<http://web.uvic.ca/calendar2017-09/undergrad/info/regulations/academic-integrity.html>

If you are seeking editing help, please note that the university has recently adopted a strict view about seeking the help of others for editing. They say (this can be found in the link above):

An editor is an individual or service, other than the instructor or supervisory

committee, who manipulates, revises, corrects or alters a student's written or non-written work.

The use of an editor, whether paid or unpaid, is prohibited unless the instructor grants explicit written authorization. The instructor should specify the extent of editing that is being authorized. Review by fellow students and tutoring that do not include editing are normally permitted.

Note for students with disabilities:

The Centre for Accessible Learning (<https://www.uvic.ca/services/cal/>) is a fantastic resource that collaborates with all academic departments to help arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with them at the beginning of each academic term.