



PHIL 360 001 – Intro to History and Phil of Science

Winter Term 2, 2025 (Jan. 5 – Apr. 10, 2026)

Tue Thu 9:30am – 11am, BUCH D312

Instructor: Alexandre Korolev

Office: BUCH E172

Email: a.korolev@ubc.ca

Office hours: by appointment

Course Description:

What is it about science that makes its claims so privileged, so reliable? A typical answer to this question is that scientific claims are reliable because they have been generated and tested using the scientific method, which is generally assumed to be something like a formal procedure involving a number of steps and a set of rules that scientists follow. It turns out, however, that the “scientific method” has a very dynamic history itself and different thinkers have articulated the “rules” of scientific thinking in many very different ways. In this course we will look at these different historical attempts at articulating what, if anything, the scientific method is. There are important insights to be gained and useful critical thinking tools to be learned from this historical perspective.

Three main (and, surely, interrelated) questions to be addressed are: (1) What is a scientific theory? (2) How do scientists come up with their theories? and (3) What makes some theories better than the others? Among the more specific issues to be discussed are: deduction, induction, prediction, and confirmation of scientific theories; the distinction between science and pseudoscience / demarcation criteria; the context of discovery; the Duhem-Quine thesis and underdetermination; the nature of scientific explanation and causation; laws of nature.

In addition to the required readings that attempt to set out a version of the scientific method, the students will be offered to pick a science of their interest out of 9 tracks: astronomy, physics, chemistry, geology, evolutionary biology, genetics, psychology, sociology, and economics, and develop a case study in the history of that science trying to evaluate whether the proposed episodes sufficiently describe the method as it was used by real scientists in real life situations.

The orientation of the course is philosophical (as opposed to being mainly historical or strictly scientific), but the hope is that this course will be of interest not only to philosophy students, but to all students interested in the foundational issues of science.

Required Texts:

- Steven Gimbel, ed., *Exploring the Scientific Method: A New Approach to Teaching and Learning Philosophy of Science*, The University of Chicago Press, Chicago and London, 2011. ISBN: 0-226-29483-8. Available in bookstore.
- Other materials available on course website.

Prerequisites:

No previous familiarity with either philosophy or particular sciences is required, although previous exposure to an introductory course(s) in philosophy and/or sciences would be an asset.

Class Format:

The general format of the class is a mixture of lectures, in-class discussions, short in-class quizzes, take-home written assignments, an in-class test, and review of assignments. The lectures will invite participation from the students, but their main goal is to introduce and illustrate concepts.

Course Website: www.canvas.ubc.ca → PHIL 360 001 2025W2

Evaluation:

Short Quizzes and Participation	20%
Midterm Test	20%
Term Paper	20%
Final Exam	40%

- **Short Quizzes:** We will have several in-class short quizzes, roughly one per week, to give you feedback on how well you've understood the readings for a given week. The quizzes will be of the reading-comprehension type, typically short-answer or multiple-choice questions. All (equally weighted) quizzes (plus class participation) amount to 20% of your final mark.
- **Midterm Test:** There will be one in-class test somewhere in the middle of the course. The mark is worth 20% of your final mark.
- **Term Paper:** There will be one term paper. I will pass out possible paper topics and the guidelines beforehand. The paper weighs 20% of your final mark.
- **Final Exam:** There will be a regular 2.5-hour-long paper-based sit-down final exam at the end of the course. The final exam counts for 40% of your final grade. The exam is cumulative as students are deemed responsible for all the material covered in this course.

Tentative Course Schedule:

Week #	Lesson / Textbook Chapter
Week 1 / Jan. 5	Intro to Deductive / Inductive Logic
Week 2 / Jan. 12	Deductivism: Plato, Aristotle
Week 3 / Jan. 19	Deductivism: Euclid, Descartes
Week 4 / Jan. 26	Inductivism: Bacon, Newton, Mill
Week 5 / Feb. 2	Hypothetico-Deductivism: Carnap, Braithwaite
Week 6 / Feb. 9	Paradoxes of Evidence: Hume, Goodman, Hempel
Feb. 16 – Feb. 20	Family Day and Mid-Term Break
Week 7 / Feb. 23	Falsificationism: Popper
Week 8 / Mar. 2	Holistic Views of Sci Theories: Duhem, Kuhn, Lakatos
Week 9 / Mar. 9	Demarcation Criteria and Pseudoscience – I
Week 10 / Mar. 16	Demarcation Criteria and Pseudoscience – II
Week 11 / Mar. 23	Semantic Views of Sci Theories: Black, Giere
Week 12 / Mar. 30	Critical Views of Sci Theories: Feyerabend, Hubbard
Week 13 / Apr. 6	Wrapping Up
Exam Period Apr. 14 – Apr. 25	Exact time and location TBA

IMPORTANT NOTE:

This schedule is tentative and may be revised as the semester unfolds. All changes to the schedule will be announced in class (and only in class – if you miss a lecture, please make sure you find a way to inform yourself about the announcements made in class).

Academic Concessions, Missed Assignments, and Grade Changes:

According to the newly revised University Academic Concession policy taking effect on Sep. 1, 2019, students must contact me, the instructor, via email as soon as you are aware you may need an in-term concession. I will adjudicate your **first** request. You need to include a Student Self-Declaration form, found on the Arts Advising website at

students-2016.sites.olt.ubc.ca/files/2018/01/Academic-Concession-Form-2-page-January-2018.pdf

Please note that, according to the new policy, for all **consecutive** concessions (second, third, etc.), you must make your request directly to your appropriate Faculty Advising Office. The official guidelines of what types of academic concessions are available to you and what procedures you need to follow to request them can be found at the following page:

students.arts.ubc.ca/advising/academic-performance/help-academic-concession/

As a rule, there'll be no make-ups for the graded activities because the answer keys for the assignments with the explanations are typically revealed to the class after the assignment deadline. If you do have a University valid excuse for missing them (see above about Academic Concession), I will transfer the weight of what you have missed to the weight of your final exam.

If you wish to have a grade reconsidered, write a brief note stating your reason. Typically, the note will outline what you take to be the requirements of a good answer and point out where you believe you met these requirements.

Learning Analytics:

Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. This course will be using the Canvas Learning Management System, capturing data about your activity and providing information that can be used to improve the quality of teaching and learning.

Overall, in this course, I may use analytics data to

- View overall class progress
- Track your progress in order to provide you with personalized feedback
- Review statistics on course content being accessed to support improvements in the course
- Track participation in discussion activity forums and in the course in general
- Assess your participation in the course.

University Policies:

- **UBC General Policies:**

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website at senate.ubc.ca/policies-resources-support-student-success

- **UBC Plagiarism Policy:**

Plagiarism, which is intellectual theft, occurs where an individual submits or presents the oral or written work of another person as his or her own. Scholarship quite properly rests upon examining and referring to the thoughts and writings of others. However, when another person's words (i.e. phrases, sentences, or paragraphs), ideas, or entire works are used, the author must be acknowledged in the text, in footnotes, in endnotes, or in another accepted form of academic citation. Where direct quotations are made, they must be clearly delineated (for example, within quotation marks or separately indented). Failure to provide proper attribution is plagiarism because it represents someone else's work as one's own. Plagiarism should not occur in submitted drafts or final works. A student who seeks assistance from a tutor or other scholastic aids must ensure that the work submitted is the student's own. Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments. A link about Academic misconduct is as follows:

www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,959

- **Students with special needs:**

Students who require accommodations in this course due to a disability affecting mobility, vision, hearing, learning, or mental or physical health are advised to discuss their needs with the Disability Resource Centre at Brock Hall, Room 1203, 1874 East Mall or visit their website at

you.ubc.ca/ubc-life/campus-community/students-disabilities

Copyright:

All materials of this course (lecture slides, assessments, etc.) are the intellectual property of the Course Instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.

Version: Dec. 15, 2025