



Department of Philosophy

PHIL 2180-1

“Philosophy of Science”

Winter 2005

Tues., Thurs. 1:00–2:20, MACK 224

COURSE OUTLINE

Please read this outline carefully and retain it for future reference.

Instructor: Andrew Bailey

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Class web site: www.uoguelph.ca/~abailey/2180

Office hours: Tuesday, Thursday 3:00–3:50, or by appointment.

Course prerequisites: 5.00 credits or one of PHIL*1000, PHIL*1010, or PHIL*1050.

COURSE DESCRIPTION:

This course is an examination of competing theories concerning the nature of science and its modes of inquiry, and the relationship between theories and data and between scientific knowledge and reality. The central problem of the course is the rational basis of scientific knowledge.

We shall begin by considering the ‘received view’ of the scientific method, developed during the early and middle years of the twentieth century, and some of its problems, particularly the theory-ladenness of observation, the underdetermination of theories by observation, and the question of reductionism. We shall then address some main challenges to this traditional view of science, from Kuhnian historicism, social constructivism, feminism, and anti-realism.

TEXTS:

- Robert Klee, *Scientific Inquiry: Readings in the Philosophy of Science*, Oxford University Press, 1998. ISBN: 0195119762
- Carl Hempel, *Philosophy of Natural Science*, Prentice Hall, 1966. ISBN: 0136638236
- Thomas Kuhn, *The Structure of Scientific Revolutions*, University of Chicago Press, 1996. ISBN: 0226458083

The readings are often challenging, and you should allow yourself plenty of time to work through them before class.

EVALUATION:

The evaluation for this class will consist of a mid-term exam (worth 30%), an essay (worth 30%), and a cumulative final exam (worth 40%). You do not need to pass all of the assignments in order to pass the course, but students who do not sit the final exam will be graded as “Incomplete.”

The paper will be due on the last day of class (**April 7th**). It will need to be 12–15 (double-spaced, typed) pages in length. A choice of topics will be handed out in early March; you may

write on a different topic, of your choice, but *only* in consultation with me: that is, you should come to see me with a topic in mind—or preferably sketched out on paper—and get my approval for it. Papers written on an unapproved subject will be considered ‘off-topic’ and graded accordingly. In grading the essays, I will take into consideration your ability to use correctly and effectively the language appropriate to the assignment: in particular, you should strive to write grammatically, accurately, clearly, precisely and concisely.

The Mid-Term Exam will take place in-class on Tuesday, **March 1st**. The Final Exam is scheduled for **Tuesday, April 19th, 2:30–4:30**, in a location to be announced. Each exam will consist primarily of short essay questions.

The exams will not be open book, but **you will be allowed to bring a ‘cheat sheet’ to both of the exams**. On a standard sheet of 8½"×11" paper you can write anything at all that you think might help you, on either or both sides, and you can refer to that sheet (but nothing else) during the exam.

Before the Final Exam I will provide a list of twenty questions. None of these questions will appear on the exam; however, if you can answer all of these questions (in sufficient detail) you should be able to answer any question that may appear on the exam.

The essay and exams will be graded using standards described in Section VIII of the Undergraduate Calendar (www.uoguelph.ca/undergrad_calendar/08-grds.shtml).

E-MAIL COMMUNICATION:

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the university and its students.

WHEN YOU CANNOT MEET A COURSE REQUIREMENT:

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise me in writing, with your name, ID number, and e-mail contact information. Where possible, this should be done in advance of the missed work or event, but otherwise, just as soon as possible after the due date, and certainly no longer than one week later. Note: if appropriate documentation of your inability to meet that in-course requirement is necessary, I will request it of you. Such documentation will rarely be required for course components representing less than 10% of the course grade. Such documentation will be required, however, for Academic Consideration for missed end-of-term work and/or missed final examinations. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration (www.uoguelph.ca/undergrad_calendar/08-ac.shtml).

My policy for late assignments in this course is the following: Unless I have granted an extension, late papers will be penalized 5% for every day they are late. If students come and see me *before* the paper is late, and if they have a good reason for their lateness, I will often grant deadline extensions of two or three days—but only a couple of times a term per student.

DROP DATE

The last date to drop one-semester Winter 2005 courses, without academic penalty, is Friday March 11th. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar (www.uoguelph.ca/undergrad_calendar/08-drop.shtml).

COPIES OF OUT-OF-CLASS ASSIGNMENTS

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

ACADEMIC MISCONDUCT

The University of Guelph is committed to upholding the highest standards of academic integrity and enjoins all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. The University of Guelph takes a serious view of academic misconduct, and it is your responsibility as a student to be aware of and to abide by the University's policy. Included in the definition of academic misconduct are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission from the relevant instructors. To better understand your responsibilities, read the Undergraduate Calendar (www.uoguelph.ca/undergrad_calendar/01.shtml) for a statement of Students' Academic Responsibilities; also read the full Academic Misconduct Policy (www.uoguelph.ca/undergrad_calendar/08-amisconduct.shtml). You are also advised to make use of the resources available through the Learning Commons (www.learningcommons.uoguelph.ca/) and to discuss any questions you may have with your course instructor, TA, or academic counsellor.

Instructors have the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion, can be imposed. Hurried or careless submission of work does not exonerate students of responsibility for ensuring the academic integrity of their work. Similarly, students who find themselves unable to meet course requirements by the deadlines or criteria expected because of medical, psychological or compassionate circumstances should review the university's regulations and procedures for Academic Consideration in the calendar (www.uoguelph.ca/undergrad_calendar/08-ac.shtml) and discuss their situation with the instructor and/or the program counsellor or other academic counsellor as appropriate.

STUDENTS REQUIRING ADDITIONAL SUPPORT:

Resources are available to you if you require additional support in the course (e.g. if you have a learning disability or are dealing with other issues that are impacting on your ability to meet the course requirements). I encourage you to come and discuss this with me, and to contact the appropriate university resource. The Centre for Students with Disabilities (which includes learning disabilities) is on Level 3 of the University Centre (www.counselling.uoguelph.ca/csd/), as is Counselling Services (www.counselling.uoguelph.ca/counselling/).

OTHER INFORMATION:

The best resource for general academic counselling (e.g. about degree requirements, or for approval to add/drop a course) is your program counsellor: these are listed in Section VII of the Undergraduate Calendar (www.uoguelph.ca/undergrad_calendar/07.shtml). The Philosophy Department's academic advisor for undergraduates is Prof. Peter Eardley, extension 53211, peardley@uoguelph.ca.

PROVISIONAL CLASS SCHEDULE, PHIL 1050-2, WINTER 2005

	TUESDAY	THURSDAY
1	Jan. 11 th : Introductory stuff	Jan. 13 th : The Received View Hempel, Chaps. 1–3 (33 pages)
2	Jan. 18 th : The Received View Hempel, Chaps. 4–5 (37 pages)	Jan. 20 th : The Received View Hempel, Chaps. 6–8 (41 pages)
3	Jan. 25 th : Theory-ladenness Suppe & Putnam (K 2–3) (14 pages)	Jan. 27 th : Theory-ladenness Maxwell & Van Fraassen (K 4–5) (15 pages)
4	Feb. 1 st : Underdetermination Duhem & Popper (K 7–8) (13 pages)	Feb. 3 rd : Underdetermination Quine (K 9–10) (11 pages)
5	Feb. 8 th : Reductionism Nagel & Oppenheim/Putnam (K 12–13) (25 pp)	Feb. 10 th : Reductionism Fodor & Kim (K 14–15) (32 pages)
6	Feb. 15 th : Scientific explanation Hempel/Oppenheim & Kitcher (K 16–17) (15 pp)	Feb. 17 th : Exam Review
	Feb. 22 nd : BREAK	Feb. 24 th : BREAK
7	Mar. 1 st : MID-TERM EXAM	Mar. 3 rd : Historicism Kuhn, Chaps. I–IV (42 pages)
8	Mar. 8 th : Historicism Kuhn, Chaps. V–VIII (49 pages)	Mar. 10 th : Historicism Kuhn, Chaps. IX–X (44 pages) <i>(Mar 11th is Last Day to Drop)</i>
9	Mar. 15 th : Historicism Kuhn, Chaps. XI–XIII (37 pages)	Mar. 17 th : The Kuhnian Model of Science Hacking & Feyerabend (K 21–22) (19 pages)
10	Mar. 22 nd : Social Constructivism Bloor & Latour & Brown (K 23–25) (24 pages)	Mar. 24 th : Feminism Harding & Pinnick (K 27–28) (32 pages)
11	Mar. 29 th : Realism/Antirealism Putnam & van Fraassen (K 30–31) (13 pages)	Mar. 31 st : Realism/Antirealism Kitcher & Brown (K 32–33) (14 pages)
12	Apr. 5 th : Realism/Antirealism Musgrave (K 34) (8 pages)	Apr. 7 th : LAST CLASS! Paper due.

NOTE: Readings are to be done *by the class date indicated*.

Date of Final Exam: Tuesday, April 19th, 2:30–4:30.