

## PHILOSOPHY OF SCIENCE

PHIL 2180\*01  
Fall 2010  
T Th 10:00 – 11:20  
CRSC, room 117

Instructor: Professor A. Wayne  
Office: MACK 331  
Office hours: Tuesday, 1:30 – 3:30  
and by appointment  
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### Course outline

In this course we look at science from a variety of philosophical perspectives. First, we examine scientific reasoning and the conditions under which experimental results support a scientific hypothesis (Goodman). Second, we look at scientific revolutions and how new scientific paradigms are developed and adopted (Kuhn). Third, we step back and examine the development of science in modern society (Barnes). The influence of scientific experts reaches into almost every aspect of contemporary life. We live in a highly specialized, highly “scientized” society. What are the advantages of this kind of society? What are its dangers?

### Texts and course materials

- Barnes, B. (1985). *About Science*. Basil Blackwell (out of print, in coursepack reader).
- Goodman, N. (1983). *Fact, Fiction and Forecast*. Harvard University Press (3<sup>rd</sup> or later edition).
- Kuhn, T. S. (1970). *The Structure of Scientific Revolutions*. University of Chicago Press (2<sup>nd</sup> or later edition).
- Online materials at <http://courselink.uoguelph.ca>. You are responsible for accessing CourseLink regularly. Some course materials and grading comments may only be available on CourseLink.

### Course requirements

- 10% Weekly reading responses
- 20% Midterm test, October 7
- 35% Essay, 5-7 pages, first paragraph due Oct. 28 (10%), full essay due Nov. 18 (25%)
- 35% Final exam, Dec. 14, 7:00 – 9:00 pm.

Reading responses are due at the beginning of each Tuesday class (except Nov. 30). You must write a response to *one* of the questions of up to 2 pages in length (typewritten, double spaced). You will present your response to a small discussion group at the beginning of the class. As well, you will hand in the response for me to check (late responses not accepted). Each satisfactory reading response adds 1 percentage point to your final grade, up to a maximum of 10 points. Unannounced in-class exercises may also be a part of this component of your grade.

### Electronic devices

In order to create a positive learning environment for all participants, this class is conducted in “airplane mode,” which means that certain electronic devices are permitted on board, but with restricted use. Phones and other wireless handheld devices may not be used and must be turned off. Laptop computers may be used solely for purposes directly related to the course, such as note taking, and they must have all send/receive functions (wifi, bluetooth and network connectivity) disabled. If the instructor or TA detects any student using a laptop in class to view non-course related materials, the student will be asked to leave class and will no longer be permitted to use a laptop in class.

### Additional support

Students with special needs or requiring additional support are encouraged to speak with me as early in the term as possible to ensure that appropriate arrangements are made.

## Tentative schedule

Week	Topic	Required reading
<b>1. Scientific reasoning</b>		
Sept. 9	Introduction	
Sept. 14 & 16	Laws and confirmation	Goodman, Ch. I
Sept. 21 & 23	Counterfactuals and induction	Goodman, Ch. II
Sept. 28 & 30	Grue and bleen	Goodman, Ch. III
Oct. 5 & 7	Entrenchment	Goodman, Ch. IV
	<i>Midterm test Oct. 7</i>	
<b>2. Scientific progress</b>		
Oct. 12 & 14	Normal science	Kuhn, Chs. I-IV
Oct. 19 & 21	Paradigms and crisis	Kuhn, Chs. V-VII
Oct. 26 & 28	Crisis and revolution <i>Essay first paragraph due Oct. 28</i>	Kuhn, Chs. VIII-X
Nov. 2 & 4	Progress through revolutions	Kuhn, Chs. XI-XIII
<b>3. Scientific authority</b>		
Nov. 9 & 11	The social organization of science	Barnes, Ch. 2 (Ch. 1 recommended)
Nov. 16 & 18	Scientific authority <i>Essay due Nov. 18</i>	Barnes, Ch. 3
Nov. 23 & 25	Scientific expertise	Barnes, Ch. 4
Nov. 30	Conclusion	
Dec. 14	7:00 – 9:00 pm <i>Final exam</i>	

**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 the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration:  
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

**Drop Date**

The last date to drop one-semester Fall 2010 courses, without academic penalty, is **Thursday November 4**. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-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 Academic Misconduct Policy is detailed in the Undergraduate Calendar:  
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

**Recording of Materials**

Presentations which are made in relation to course work—including lectures—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.

**Resources**

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate programs. It can be found at:  
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>