

## **PHIL 2180 Introductory Philosophy of Science, Fall 2013 T/TH 11:30 – 12:50, MacKinnon 226**

**Instructor:** Karyn Freedman

**Email:** [karynf@uoguelph.ca](mailto:karynf@uoguelph.ca)

**Office:** 354 MacKinnon

**Phone:** 519-824-4120 x.53232

**Office Hours:** Tuesday 4 – 5:30 & Thursday 10:30 – 11, or by appointment

**GTA:** Brent Ables

**Email:** [bables@uoguelph.ca](mailto:bables@uoguelph.ca)

**\*\*Final Exam:** Thursday, December 12, 2:30pm – 4:30 pm

### **COURSE DESCRIPTION**

In this course we will survey a number of the central issues that arise from a philosophical study of the natural sciences. In the first part of the course we will look at the logical positivist model of science and scientific theories and at some associated concerns, e.g. the observational/theoretical distinction and the problem of underdetermination. After that we will read Thomas Kuhn's landmark work *The Structure of Scientific Revolutions* (1962). The last third of the course will be devoted to some of the issues that have preoccupied philosophers of science since the initial publication of Kuhn's book, including social constructivism and the realism/anti-realism debate. In this part of the course we will read the biologist Richard Lewontin's *Biology as Ideology* (1991). Throughout the course we will look for answers to the following questions: what is the nature of science? Is there a scientific method? Are the sciences rational? Do the entities contained in scientific theories, such as genes and electrons, really exist? And what role does gender play in science?

### **TEXTS**

Robert Klee, ed., *Scientific Inquiry: Readings in the Philosophy of Science* (Oxford University Press), 1999.

Thomas S. Kuhn, *The Structure of Scientific Revolutions* (University of Chicago) 1962, 1970.

Richard C. Lewontin, *Biology as Ideology* (HarperPerennial), 1991.

The rest of the readings will be available to you online, through the library's ARES Course Reserve (indicated on your syllabus as ARES). You can access ARES by going to the library's home page and selecting 'course reserve', and then look for either your name or this course. If you need a password, which you might in some cases, it is our course number: PHIL2180.

### **COURSE FORMAT**

We will meet twice a week during the fall term in MacKinnon 226. Class time will be divided between lectures and discussion. In order to be able to contribute to classroom discussion it is imperative that you do the day's reading prior to coming to class.

### **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.

**DROP DATE**

The last date to drop one-semester Fall 2013 courses, without academic penalty, is Thursday, October 31. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar. ([http://www.uoguelph.ca/undergrad\\_calendar/c08/c08\\_drop.shtml](http://www.uoguelph.ca/undergrad_calendar/c08/c08_drop.shtml))

**WHEN YOU CAN'T 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>

\* See below for specific details on late assignments and missed tests

**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/undergrad\\_calendar/08-amisconduct.shtml](http://www.uoguelph.ca/undergrad_calendar/08-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/>

If you find yourself in difficulty, contact the undergraduate advisor in your program, or the BA Counselling Office: <http://www.uoguelph.ca/baco/contact.shtml>

**STUDENT RIGHTS AND RESPONSIBILITIES**

Each student at the University of Guelph has rights which carry commensurate responsibilities that involve, broadly, being a civil and respectful member of the University community. The Rights and Responsibilities are detailed in the Undergraduate Calendar: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c14/c14-strightsrespon.shtml>

## EVALUATION

1. **Two in-class critical summary tests (2 x 5% = 10%).** You will have two in-class writing assignments (dates and readings are indicated on your syllabus), and each one has two parts.

**Part one (3%):** To earn 3% (out of 5%), you must come to class and write a critical summary on the reading assigned. A critical summary requires a precise formulation of some claim or argument from the reading, and a presentation of an objection to this point. These summaries should be no longer than two pages (handwritten, double spaced). You will receive 3% so long as it is clear that you have done the reading and given thought to the argument in question.

**Note:** You cannot proceed to part two unless you complete part one of the assignment.

**Part two (2%):** To earn your final 2% (out of 5%), you must attend the TAs office hours and meet with him, one-to-one, to go over your critical summary. You must do this in a timely manner (e.g. in the first few weeks following the test). This will provide you with essential feedback on your philosophical writing and ... (and especially following... following the first critical summary as the feedback you receive then will be helpful to your essay writing.

**Note:** There will be no opportunity to make-up the critical summary – *if you miss class, you lose the 5%.*

2. **Mid-term test (30%).** This will be an in-class test. It may include some definitions, true/false questions, short answer and long answer questions.

- *Students unable to write the mid-term test for medical reasons will be required to submit a medical certificate.* Students who miss the test for medical or religious reasons will be given one opportunity to do a rewrite.

3. **One 5-page essay (25%).** Topics for the essay will be handed out 3 weeks prior to the due date.

- *Late essays will be penalized 2% per day unless accompanied by a medical certificate.*
- **Note:** The philosophy department does not accept late essays at the front office and I do not accept emailed essays. Essays must be handed in to me, in person, either in class or during my office hours.

4. **Final exam (35%).** This will take place during the Final Exam Period as scheduled by the College of Arts. The exam may include some definitions, true/false questions, short answer and long answer questions.

- Students who are unable to write the final exam due to medical or religious reasons must follow the guidelines set out in Undergraduate Calendar.

DATE	TOPIC	READINGS
September 5	Class mechanics; Introduction	Klee "Introduction"
September 10 September 12	Logic and critical reasoning; Positivism Observation/Theory Distinction	No reading; Suppe Putnam, Maxwell, van Fraassen
September 17 September 19	Underdetermination; Falsificationism Empiricism; Paradox of the Ravens	Duhem, Popper Quine (Holism part 1, p.72)
September 24 September 26	D-N Model Scientific Explanation <b>*critical summary test</b>	Hempel & Oppenheim Kitcher (p. 181-189)
October 1 October 3	Kuhn Kuhn	<i>Structure</i> Ch. I–VII "
October 8 October 10	Kuhn <b>*Essay topics handout</b> Kuhn	<i>Structure</i> Ch. VIII–XIII <i>Structure</i> Ch. VIII–XIII, <i>Postscript</i>
October 15 October 17	<b>Midterm</b> Rationality of Science	Hacking; Feyerabend
October 22 October 24	Realism and Experimentation Social Constructivism	Putnam; Hacking (ARES) Latour & Woolgar; Bloor
October 29 October 31	Constructivism and History <b>*Essay due</b> Trust in Science	Shapin (ARES) Hardwig (ARES)
November 5 November 7	Feminist Philosophy of Science Gender and biology	Crasnow (ARES) Keller (ARES)
November 12 November 14	Gender, Politics and Theoretical virtues <b>*critical summary test</b> Biology as ideology	Longino (ARES) <i>Biology</i> , Ch. 1-3
November 19 November 21	Biology as ideology Biology as ideology	<i>Biology</i> , Ch. 4-6 <i>New York Times</i> review of Keller (ARES)
November 26	<b>Final exam review</b>	No reading