Douglas College

EFFECTIVE: JANUARY, 2008
CURRICULUM GUIDELINES

A. Division: **EDUCATION** Effective Date: **January, 2008**

B. Department: **PHILOSOPHY & HUMANITIES**
Program Area: **FACULTY OF HUMANITIES & SOCIAL SCIENCES**

Revision: [X] New Course: [ ]

If Revision, Section(s) Revised: **C, D, F, M, N, P**
Date of Prior Revisions:: **March 2006**
Date of Current Revision: **June 2007**

C: **PHIL 2280** **(formerly PHIL 1280)** **D:** **SCIENCE & SOCIETY** **E:** **3**

Subject & Course No. | Descriptive Title | Semester Credits

F: Calendar Description:

This course explores the social dimensions of science and the influence of science on society. The course will introduce students to the philosophical issues that arise from the interaction between, on the one hand, aspects of society, such as public attitudes, moral values, law, truth in the media and, on the other, the theories and practices of science. Examples of the kinds of issues that may be discussed include: the relationship between science and religion; pseudo-sciences and scientific fraud; societal attitudes towards science, such as society's response to nuclear technologies and GMOs; the scientific research mandated by corporate profit; the social acceptability and costs of scientific technologies. This course will enable students to understand and critically reflect upon both the procedures utilized by the scientific community and the pressures faced by scientists as part of society. Students will examine the ways in which scientific evidence is created, evaluated, promoted, used and sometimes misused.

G: Allocation of Contact Hours to Type of Instruction / Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture & Seminar

Number of Contact Hours: (per week / semester for each descriptor)

Lecture: 2 hrs. per week / semester
Seminar: 2 hrs. per week / semester

Number of Weeks per Semester: **15**

H: Course Prerequisites:

NONE

I: Course Corequisites:

NONE

J: Course for which this Course is a Prerequisite:

NONE

K: Maximum Class Size:

35

L: PLEASE INDICATE**:**

[ ] Non-Credit
[ ] College Credit Non-Transfer
[X] College Credit Transfer:

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bctransferguide.ca)

M: Course Objectives / Learning Outcomes

The general objectives of the course are:

1. To introduce students to a philosophical approach to scientific thought and the application of scientific thought to social and political problems

2. To encourage students to reflect critically about the ways that scientific ideas and institutions influence ideas and institutions in the wider society, as well as society's economic, political, cultural and moral ideals

3. To enable students to develop more effective methods for making up their own minds about issues involving scientific input to societal institutions as well as social problems and issues.

Specific learning outcomes: by the end of the course, successful students should be able to:

1. Demonstrate a clear understanding of the nature of scientific theory and explanation, as well as apprehend the reasons for scientific controversies, including inappropriate biases in science

2. Explain and analyze the role of scientific explanation in social contexts, especially in those controversies and disagreements that have arisen when social institutions turn to the sciences for information required to deal with societal goals

3. Apply the philosophical analyses developed to the kinds of problems raised by the appropriation of scientific knowledge by non-scientific social institutions and by society at large, including the assessment of public perceptions of science

4. Explain the concepts and reasoning involved by those philosophical frameworks employed to analyse the relationship between science and society

5. Demonstrate an ability to develop their own arguments and reasoned defence of a position with regard to some of the controversies discussed.

N: Course Content:

The course will be structured by social/political issues in which debate has been informed by the application of scientific methodology, information, data or theories. Examples of broader issues that might be considered include:

<u>Science and Objectivity:</u>
Does scientific objectivity exist? What is the relationship between science and political or religious ideology? Are there biases of race, class, gender, religion which influence scientific findings? Should scientific findings come with labels, such as "communist science," "feminist science," "Christian science," "corporate science," etc.?

<u>Science and Value:</u>
Is science value-free or does it reflect a set of values? What values govern science and what values ought to govern science? To what extent can we look to science to clarify questions of value? How is a society to decide which scientific investigations deserve the greater share of societal resources? Does the source of funding for scientific research affect the findings of that research? To what extent should scientists be held responsible for the uses and abuses of technologies based upon their findings? Does the scientist have a unique duty to society? How do scientific claims to be quantitative and objective affect their ability to influence public policy?

<u>Science, Pseudo-Science, Junk-Science and Scientific Fraud:</u>
Are there any features of the scientific enterprise that definitively distinguish it from other human intellectual enterprises? Are scientific findings valuable in virtue only of being scientific? Are there clear criteria by which we can distinguish science proper from junk science, pseudoscience, and irrational belief? How, if at all, does junk science differ from propaganda? How do fraud and misconduct in science affect the scientific enterprise?

Continued…

Representations of Science in Popular Media

How does science appear on television and in films? How do museums, textbooks, and science education, science in the press and popular scientific writing portray science? Does the representation of science in science fiction reflect societal views of science? Is science for children? Has science become the new religion? Is science a worldview?

Examples of more specific issues that might be considered include:

God and science; Darwinism and social theory; intelligence testing and the idea of human norms; reproductive technologies; genetic modification of foods; eugenics and the idea of human norms; gender-bipolarism and the gender classification of inter-sex children; the inclusion of homosexuality in the DSM-III; nuclear energy and nuclear weapons; global warming; mass extinction of species; ecology and the use of resources in the developing world; pharmaceutical testing and research; science with corporate mandate and oversight; social control and the social sciences; socio-biology and gender role stereotypes; the perception and treatment of mental illness.

However the course topics are chosen, the course would introduce students to a variety of views about the nature of science. The course may also deal with different views of the history of interactions between scientists, scientific data, scientific theory and societal concerns have influenced and been influenced by views about the nature of science.

O: Methods of Instruction

A combination of lecture and discussion (possibly including student presentations). Some class sessions may involve formal lectures for the entire time (allowing time for questions), in which case a later session will allow discussion of the lecture and reading material. Other class sessions may involve a combination of informal lecture and structured discussion.

P: Textbooks and Materials to be Purchased by Students

Sample texts (one or more of the following):

Bridgestock, Martin, *et. al. Science, Technology and Society: An Introduction*, (NY: Cambridge University Press, 1998).

Carlson, Elof. *Times of Triumph, Times of Doubt: Science and the Battle for Public Trust*, (NY: Cold Spring Harbor Laboratory Press, 1998).

Chalmers, A.F. *What is this thing called Science?* (Buckingham: Open University Press, 1999).

Engelhardt, H.T. and Arthur Caplan. *Scientific Controversies: Case Studies in the Resolution and Closure of Disputes in Science and Technology*, (NY: Cambridge University Press, 1987).

Foster, Kenneth and Peter Huber. *Judging Science: Scientific Knowledge and the Federal Courts*, (Cambridge: MIT Press, 1997).

Friedlander, Michael. *At the Fringes of Science*, (Boulder: West view Press, 1995).

Gregory, Jane and Steve Miller. *Science in Public: Communication, Culture, and Credibility*, (NY: Plenum Trade, 1998).

Grinnell, Frederick. *The Scientific Attitude*, (NY: The Guildford Press, 2002).

Irwin, Alan and Brian Wynne *Misunderstanding Science? The Public Reconstruction of Science and Technology*, (NY: Cambridge University Press, 1996).

Latour, Bruno. *Science in Action*, (Cambridge: Harvard University Press, 1987).

Welkin, Dorothy and Laurence Tancredi .*Dangerous Diagnostics: The Social Power of Biological Information*, (NY: Basic Books, 1994).

Porter, Theodore. *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*, (Princeton: Princeton University Press, 1995).

Ziman, John M. *Reliable Knowledge: An exploration of the Grounds for Belief in Science*, (NY: Cambridge University Press, 1991).

Q: Means of Assessment

Evaluation will be based upon course objectives and will be carried out in accordance with Douglas College Policy. The instructor will provide a written course outline with specific criteria for assessment during the first week of classes.

Any combination of the following totalling 100%:

Essays:	20% – 80%
Tests:	20% – 50%
Instructor's General Evaluation: (participation, improvement, quizzes, short assignments, etc.)	10% – 20%

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

No.

Course Designer(s): Darcy Cutler & Edrie Sobstyl

Education Council / Curriculum Committee Representative

Dean / Director

Registrar