

MODULE 3 (2001/2002)

POLITICS OF KNOWLEDGE

October 15, 2001 Monday 19:00-22:15	The Nature of Scientific Inquiry	Lecture 1	Irzik
October 17, 2001 Wednesday 19:00-22:15	Paradigms and Scientific Revolutions	Lecture 2	Irzik
October 18, 2001 Thursday 19:00-22:15	The Nature of Scientific Inquiry & Paradigms and Scientific Revolutions	Seminar 1	Irzik
October 20, 2001 Saturday 10:30-13:30	Sociology of Scientific Knowledge	Lecture 3	Irzik
October 22, 2001 Monday 19:00-22:15	Sociology of Scientific Knowledge	Seminar 2	Irzik
October 24, 2001 Wednesday 19:00-22:15	Science and Technology in Interaction	Lecture 4	Irzik
October 25, 2001 Thursday 19:00-22:15	Science and Technology in Interaction	Seminar 3	Irzik
October 27, 2001 Saturday 10:30-13:30	Bruno Latour and Actor-Network Theory	Lecture 5	Turanli
October 30, 2001 Tuesday 19:00-22:15	Technology, Philosophy, Politics	Lecture 6	Turanli
October 31, 2001 Wednesday 19:00-22:15	Actor-Network Theory and Technology, Philosophy Politics	Seminar 4	Turanli
November 1, 2001 Thursday 19:00-22:15	Technology and Democracy	Lecture 7	Turanli
November 3, 2001 Saturday 10:30-13:30	Technology and Democracy	Seminar 5	Turanli

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THE AIM OF THE MODULE:

The third module of the first semester concentrates on the several issues: the first part of the module consists of clarifying the concept of “scientific knowledge” by discussing the nature of scientific inquiry, scientific revolutions, and sociology of scientific knowledge. The second part of the module aims at showing the interaction between science and technology. Democratization of technology, the relationship between philosophy, sociology and technology are issues to be discussed.

THE ARGUMENT OF THE MODULE:

Before getting into the discussion about the policies of science and technology, the concept of “scientific knowledge” is clarified. The first part includes the discussion about what science is, its relation to other systems of knowledge. How objective science is, is another question to be discussed. Can there be a pure observation language, or theory-neutral observation language is an illusory idea are some of the questions sociologists of science deal with. The relation between the concepts of “incommensurability,” “relativism” and “progress is clarified by the discussion of the objectivity of science. Is science an autonomous discipline, or is it affected by political, social, cultural factors? The discussion about sociology of scientific knowledge deals with these questions.

Bruno Latour, French anthropologist and philosopher, contends that humans and nonhumans form a network, which he calls the collective. Actor-network theory presented by Latour within science studies is another topic to be dealt with.

The nature of technology is discussed by philosophers and sociologists of technology. Some say that technology is autonomous, some say that it has essence, some say that it is a social construction, some say that even technological devices have ethical connotations. In what ways these views are justified or unjustified are the topics to be discussed.

Democratization of technology is another important issue in a technological society. In what ways the will of the people is represented in technological culture is also a topic to be discussed.

MODULE STRUCTURE:

This module is made up of two parts:

1. Lectures to present central perspectives
2. Seminars given by students to discuss the literature about the central concepts of the module. Students are not required to read all the suggested literature. He/she may select one or two texts as a preparation for the seminar.

ASSESSMENT:

The student has to write a paper of approximately 5 pages (single space, font 12) on a topic related to the issues covered in the third module's lectures and submit it on Monday, the 5 of November, 2001.

The essay should meet all the specifications of a term paper, including a list of literature used in writing the essay. The paper should conform to the rules that can be found in the manual (Tez Yazim Kilavuzu) which can be obtained from the Social Science Institute.

The essay will be evaluated regarding to the student's ability to structure and present his/her thoughts clearly.

Lecture 1

THE NATURE OF SCIENTIFIC INQUIRY

In this lecture we discuss the nature of scientific inquiry. We begin by distinguishing between science as an institutional activity and science as an end product of this activity and focus on the latter. Issues to be discussed are the problem of demarcating science from non-science, the aims of science as opposed to the aims of scientists, scientific method, the structure of scientific theories, the nature of scientific explanation and knowledge.

Lecture Readings:

- 1) R. Nola, "Science: Its Definition and Aims". Lecture Notes.
- 2) K. Popper, "The Problem of Demarcation", in *Popper Selections*, (ed). D. Miller, Princeton University Press, 1985, pp. 118-130.
- 3) C. G. Hempel, *Philosophy of Natural Science*, Prentice Hall, 1966, Chs. 1-4.

Seminar Readings:

- 4) C. G. Hempel, *Philosophy of Natural Science*, Prentice Hall, 1966, Chs. 5-6.
- 5) K. Popper, *Conjectures and Refutations*, Harper and Row, 1968, pp. 215-235.

Lecture 2

PARADIGMS AND SCIENTIFIC REVOLUTIONS

Taking its cue from history of science, Thomas Kuhn's *The Structure of Scientific Revolutions* presented a radical alternative to (a) the textbook image, (b) the logical empiricist image and (c) the Popperian-falsificationist image of science. Kuhn distinguished between normal and revolutionary science, and characterized scientific revolutions as paradigm shifts. In this lecture we discuss Kuhn's alternative account of science and scientific activity, with particular emphasis on different aspects of incommensurability, scientific progress and its impact on the sociology of science.

Lecture Readings:

- 1) T. Kuhn, *The Structure of Scientific Revolutions*, 2nd (or 3rd ed.) The University of Chicago Press, 1970, Chs. 1, 3, 9, 10 and Postscript-1969.
- 2) G. Gutting, "Introduction", in *Paradigms and Revolutions*, University of Notre Dame Press, 1980, pp. 1-21.

Seminar Readings:

- 1) T. Kuhn, *The Structure of Scientific Revolutions*, 2nd (or 3rd ed.) The University of Chicago Press, 1970, Ch. 12.
- 2) T. Kuhn, "Objectivity, Value Judgement and Theory Choice" in *The Essential Tension*, The University of Chicago Press, 1977, pp. 320-339.
- 3) H. Brown, *Perception, Theory and Commitment*, The University of Chicago Press, 1977, ch. 8.

Lecture 3

SOCIOLOGY OF SCIENTIFIC KNOWLEDGE (SSK)

Science can be studied by scientific means, in particular, by sociology, to the extent to which it is a collective and institutional activity. Science is done by scientists who form a community in Kuhn's sense, and sociology can certainly investigate the formation of scientific communities, the mechanisms by which a novice scientist is accepted into one, the norms of scientific conduct, the social and economic influences on scientific activity, and how research is funded. Can sociology study and explain the very content of science itself? "The Strong Program" in SSK developed by the Edinburgh school claims that it can. We will critically examine the claims of the Strong Program and the case studies that are presented as its paradigmatic applications.

Lecture Readings:

R. Merton, *The Sociology of Science*, The University of Chicago Press, 1973, chs. 7, 10.

D. Bloor, *Knowledge and Social Imagery*, 2nd. Ed. The University of Chicago Press, 1991, ch. 1.

Seminar Readings:

D. Bloor, *Knowledge and Social Imagery*, 2nd. Ed. The University of Chicago Press, 1991, ch. 4.

R. Merton, *The Sociology of Science*, The University of Chicago Press, 1973, chs. 13-15.

Lecture 4

SCIENCE AND TECHNOLOGY IN INTERACTION: A HISTORICAL OVERVIEW

While technology is usually considered to be applied science, the relationship between science and technology is more intricate and complex than that. A historical look reveals that until the mid-19th century, science and technology have gone their separate ways without much serious interaction between the two. It is only in the twentieth century the two merge, with science becoming “Big Science” or perhaps, equivalently, “Big Business”.

Lecture Readings:

J.E McClellan III and H. Dorn, *Science and Technology in World History*. The Johns Hopkins University Press, 1999, “Introduction” (pp. 1-2) and Part IV (pp. 275-369).

Seminar Readings:

M. F. Perutz, “Friend or Foe of Mankind”, in *I Wish I'd Made You Angry Earlier*, Oxford University Press, 1998, pp. 3-16.

Lecture 5

BRUNO LATOUR AND ACTOR-NETWORK THEORY

Bruno Latour is one of the most important defenders of science studies approach. He teaches at the Center for the Study of Innovation at the School of Mines, France.

For Latour, science studies is more realistic account of science because it deals with science in the making, and grounding it firmly in laboratory sites, experiments, and groups of colleagues. Rather than talking about objectivity and objects, Latour chooses to talk about *nonhumans* that are socialized through the laboratory and with which scientists and engineers begin to interchange properties. Pasteur makes his microbes while the microbes make their Pasteur, while humans are shaping nonhumans, nonhumans, in return shape humans. They are forming constantly changing collectives.

Instead of offering the standard view's distinctions between a reality "out there," a mind "in there," and a mob "down there" Latour offers us the "collective." This collective includes a hybrid world made up of people, stars, electrons, nuclear plants, and markets, and it is our duty to turn it into either a "lawless mess" or an "ordered whole," a cosmos; *cosmopolitics*. Realism of science studies lies in the fact that it considers the human character of scientific practice, its lively history, its many connections with the rest of the collective.

Lecture Readings:

(1) Latour, Bruno. *Pandora's Hope*. Cambridge MA: Harvard University Press. 1999. Chapter I and II.

Seminar Readings:

(2) Latour, Bruno. *Science in Action: How to Follow Engineers and Scientists Through Society*. Cambridge MA: Harvard University Press. 1987 Introduction and Appendix I and II.

Lecture 6

TECHNOLOGY, PHILOSOPHY, POLITICS

Is technology autonomous? Is there an essence of technology? Or, talking about the essence of technology is nonsense? Philosophers do not agree on these issues. Progressive thinkers say that technology is autonomous and it determines the superstructural institutions, while social constructivists reject this view. Are we to see the social and technical domains as being separate, or are we to say that they are undeniably intertwined. We will discuss these issues during this lecture.

Lecture Readings:

(1) Feenberg, Andrew. "Technology, Philosophy, Politics" in *Questioning Technology*. New York: Routledge. 1999. Chapter 1.

Seminar Readings:

(2) Habermas, Jurgen. "Technology and Science as Ideology" in *Toward a Rational Society*. Oxford: Polity Press. 1987.

(3) Pippin, Robert. "On the Notion of Technology as Ideology" in *Technology and the Politics of Knowledge*. Bloomington: Indiana University Press. 1995.

(4) Wartofsky, Marx. "Technology, Power, and Truth" in *Democracy in a Technological Society*. Dordrecht: Kluwer Academic Publishers. 1992.

Lecture 7

TECHNOLOGY AND DEMOCRACY

The obstacles to technical democracy are considerable and growing. In the technical sphere, it is usually said, legitimacy is a function of efficiency rather than the will of the people. The right of the people to involve itself in technical matters is constantly called into question. How can the will of the people represented in a technological culture is the topic of this lecture.

Lecture Readings:

(1) Feenberg, Andrew. "Impure Reason" in *Questioning Technology*. New York: Routledge. 1999. Chapter 9.

Seminar Readings:

(2) Heidegger, Martin. "The Question Concerning Technology" in *The Question Concerning Technology and Other Essays*.

(3) Rockmore, Tom. "Heidegger on Technology and Democracy" in *Technology and the Politics of Knowledge*. Bloomington: Indiana University Press. 1995