

ENV SOC SCI & HUMNS 5110:
SCIENCE, TECHNOLOGY, AND SOCIETY (STS) STUDIES
(3 credits)
Tuesdays, 4.00-6.30pm

Instructor: Prof. Carl Mitcham (Faculty Associate, Center for Science and Technology Policy Research; Professor of Liberal Arts and International Studies, Colorado School of Mines)

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Basic Course Description: A critical introduction to science, technology, and society relationships and their scholarly analysis.

Elaborating Introductory Note

The rise of modern science and technology has presented a series of challenges to society. In the 1500s and 1600s (with the Scientific Revolution led by such figures as Galileo, Bacon, Descartes, and Newton) and again in the 1800s (with Darwin) conflicts arose between science and religion; these conflicts have continued into the present. In the late 1700s and 1800s (with the Industrial Revolution led by inventors such as Watt) special problems arose for economics and politics; these problems have been resolved by neither capitalism, socialism, nor democracy. The 20th century advent of nuclear weapons, electronic computers, and biotechnologies — followed by 21st century globalization — have only intensified multiple challenges that range across issues of personal belief and social justice to nuclear risk, environmental pollution, cultural integrity, and self-identify. Issues of professional ethics and responsibility among scientists and engineers, as well as science and technology policy, are further dimensions of STS studies.

Week #1 (Aug. 24, 2004)

Class introduction. Class survey. Video: “The Day After Trinity” (1980).

Week #2 (Aug. 31, 2004) Two Beginnings

Thomas Kuhn, *The Structure of Scientific Revolutions* (1962), Preface, Chapters 1 and 2

Rachel Carson, *Silent Spring* (1962), Chapters 1 and 17

Video: “Rachel Carson’s Silent Spring” (1962), Chapter 1 and 17
 Overview histories of STS relations and STS studies.

Part I: Social Criticisms of Science and Technology

Week #3 (Sept. 3, 2004) Mumford, Merton, Bronowski, Snow, Ellul, Schumacher, and Illich

Lewis Mumford, *Technics and Civilization* (1934), Chapter 1, sections 1 and 2, “Machines, Utilities, and ‘The Machine ’” and “The Monastery and the Clock”

Robert Merton, “Science and the Social Order” (1938) and “The Normative Structure of Science” (1942)

Jacob Bronowski, *Science and Human Values* (1956)

C.P. Snow, *The Two Cultures and the Scientific Revolution* (1959)

Jacques Ellul, *The Technological Society* (1964), introductory material and Chapter 2, “The Characterology of Technique”

E.F. Schumacher, *Small Is Beautiful* (1973), “Buddhist Economics”

Ivan Illich, *Deschooling Society* (1971), Chapter 7, “Rebirth of Epimethean Man.”

Available at <http://www.preservenet.com/theory/Illich/Deschooling/intro.html>

Tools for Conviviality (1973), Introduction and Chapter 1, “Two Watersheds.”

Available at

http://www.incae.ac.cr/ES/clacds/proyectos/naciones_digitales/construyendo_escenarios/documentos/Illich%20Chapters%201_2_3.pdf

Week #4 (Sept. 14, 2004) Part I continued

Week #5 (Sept. 21, 2004) Part I continued

Week #6 (Sept. 28, 2004) Part I continued

Part II. The Professionalization of STS

FALL BREAK

Week #7 (Oct. 5, 2004) Science and Technology Studies

Week #8 (Oct. 12, 2004) Bioethics and Technology Assessment

Week #9 (Oct. 19, 2004) Engineering, Research, and Computer Ethics

Week #10 (Oct. 26, 2004) Catch up day

Part III. Contemporary Texts

Week #11 (Nov. 2, 2004) Langdon Winner (1986) and Donna Haraway (1991)

Week #12 (Nov. 9, 2004) Bruno Latour (1993)

Week #13 (Nov. 16, 2004) Harry Collins and Trevor Pinch (1993) and Wiebe Bijker (1995)

Week #14 (Nov. 23, 2004) Julian Simon (1995)

THANKSGIVING BREAK

Week #15 (Nov. 30, 2004) Sheila Jasanoff (1995)

Week #16 (Dec. 7, 2004) Thomas Hughes (2004)

FINAL EXAM