

COURSE SYLLABUS

Technoscience, Communication and Innovation Lab.

2021-2-F8802N029

Learning objectives

The Human Use of Human Beings: Cybernetics and Society (1950-2020)

For the 70th anniversary of the first edition of Norbert Wiener's *The Human Use of Human Beings: Cybernetics and Society*, this year's laboratory focuses on **cybernetics** in the triple sense of the crossroads between disciplines, scientific-intellectual movement and transdisciplinary project. The lectures will address the salient moments of cybernetics through a reading of some founding essays and international historiographies.

Learning objectives:

- understanding of the historical-social context in which cybernetics was born;
- comprehension of the geopolitical and epistemological dimensions before and after the Second World War;
- ability to critically read the main primary and secondary literature sources;
- elaboration of a second-order perspective in the analysis of social processes linked to technological and social innovation.

Contents

The laboratory has a seminar mode: it is divided into **frontal lessons** with moments of **personal presentations** and **group discussion**. In particular, the following topics will be addressed:

- Historical-political contextualization of cybernetics
- Life and works of Norbert Wiener
- Development phases of the cybernetics movement
- Cybernetics historiography: method problems

- Cybernetics and Anthropology: Mead-Bateson
- Second-order cybernetics: H. von Foerster
- Cybernetics and politics: Cybersyn project
- Cybernetics and Artificial Intelligence: a geopolitical interpretation

Detailed program

0. Introduction to the workshop (Webex lesson)

- Organization of lessons and presentation of interaction and evaluation methods
- What is cybernetics? Concepts, protagonists, institutions

1. Historical-political contextualization in which cybernetics arose (recorded lesson)

- Engineering cultures between the First and Second World War
- The genesis of Big Science and Science Policy: from Manhattan Project to the Endless Frontier
- Role of Philanthropic Foundations: from Rockefeller to Josiah Macy Jr.

2. Life and works of Norbert Wiener (recorded lesson)

Reading and commenting on excerpts from:

- Ex prodigy
- I Am a Mathematician
- Cybernetics or control and communication in the animal and in the machine
- Introduction to cybernetics: the human use of human beings
- God & Golem, Inc.
- Invention: The Care and Feeding of Ideas

3. Development phases of cybernetics movement (recorded lecture)

Reading and commenting on excerpts from the reading materials

- Sources, materials and references for a sociological study of cybernetics
- Cybernetic historiography: method problem (S. Heims, J-P. Dupuy, N. Hayles, R. Kline)
- From *Macy Conferences* to the establishment of the *American Society for Cybernetics*

4. Second-order cybernetics (Webex lesson)

Reading and commenting on excerpts from the reading materials

- M. Mead and G. Bateson on the role of the observer in ethnographic practice
- H. von Foerster on the concept of "observing system"
- S. Beer and the Cybersyn Project: democracy and cybernetics

5. Artificial Intelligence vs. Cybernetics (recorded lecture)

Reading and commenting on excerpts from the reading materials

- The industrial-military complex in the financing of U.S. research
- Biological Computer Laboratory as a case study
- Schismogenesis between USA-URSS in the Cold War and the space race

6. Final round table on the relationship between cybernetics and society (Webex lesson)

- - questions/answers
- - preparation for oral exposure

Prerequisites

Basic knowledge of the history of the Twentieth century; reading of articles and materials in English

Teaching methods

Frontal lectures pre-recorded and uploaded on the e-learning page of the laboratory.

There will be 3 interactive meetings via Webex:

- at the beginning: introduction and presentation of the topics, with the possible assignment of an article to be presented in the second interactive meeting;
- in itinere: first moment of group discussion on the topics presented and for the possible exhibition of an article among those selected in the pantry;
- at the end: round table discussion on the topical-actuality of cybernetics for the understanding of contemporary society and in view of the presentation during the oral exam of Technoscience, Communication and Innovation.

Reading materials, as well as the final calendar of lessons and Webex meetings, will be published close to the beginning of the laboratory.

Assessment methods

Individual oral presentation of a theme and/or an article, previously agreed upon with the teacher of the laboratory, during the exam of Technoscience, Communication and Innovation. In particular, it will be evaluated the property of language, exposition accuracy, the ability to build connections between the topics of the laboratory and those learned during the whole university education.

Textbooks and Reading Materials

- Wiener, N. (1950) *The Human Use of Human Beings: Cybernetics and Society* (First edition)
- Reading materials (available at the beginning of the laboratory)

Further reading references:

- Heims, S. (1991) *The Cybernetics Group*
 - Kline, R. (2016) *The Cybernetics Moment: Or Why We Call Our Age the Information Age*
 - Dupuy, J.-P. (2000) *The mechanization of the mind: on the origins of cognitive science*
 - Anders, G. (1956) *The Outdatedness of Human Beings 1. On the Soul in the Era of the Second Industrial Revolution*
 - Cordeschi, R. (2011) *The discovery of the artificial: behaviour, mind and machines before and beyond cybernetics*
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