

Lecture Notes:

- ① **Science:** ways of studying empirical phenomena to develop verifiable knowledge; the process of science implies the use of specific methods generally held to be valid and reliable by a particular scientific community
- I Sociologists study science as a(n):
 - **process:** set of methods and techniques designed to discover knowledge about a particular phenomenon
 - **institution:** set of formal relations among practitioners (called scientists), including their norms and resources
 - **community:** set of people and groups interested in developing a better understanding of a particular aspect of the empirical world through its direct study; also their patterns of interaction and communication
 - **profession:** an occupation with specific (usually demanding) standards for entry, strict norms of conduct, strong status hierarchy and rules for promotion, external recognition and relatively high social status
 - **cultural capital:** set of information, beliefs, norms, and ideas regarding how and why a particular aspect of reality operates as it does, along with the rules for how to develop new knowledge
 - 2 Science is institutionalized into particular organizations that society holds responsible for knowledge generation
 - academic scientists are usually employed by research universities and often also teach; other scientists work in corporations or the government and often pursue more practically oriented questions
 - the sciences are formally divided into “fields” or “disciplines;” traditionally these include such areas as the **natural sciences** (astronomy, biology, chemistry, geology, physics, etc.), which study physical phenomena, and the **social sciences** (anthropology, economics, political science, psychology, sociology, etc.), which study human phenomena; these major disciplines are now also often divided into further specializations, such as genetics, or social psychology; there are also increasingly **interdisciplinary** fields that combine insights and techniques from more than one discipline
 - science has become increasingly:
 - **bureaucratized:** formally organized with many rules and procedures that stifle innovation
 - **commodified:** scientific knowledge is bought and sold like any other product with a market “value;” this destroys the traditional idea that science is a common good to be shared by everyone
 - **politicized:** research questions often have practical and ethical connotations and so are variously supported or discouraged, depending on who is in power and where public attention is focused
 - 3 **Science policies** are the governmental and organizational rules and initiatives designed to influence the effective allocation of resources to scientific and technological activities and guide their social consequences
 - organizations decide which potential discoveries their scarce resources will be put toward
 - they develop uses and applications for these ideas
 - they attempt to shape public reaction to these discoveries and their applications
 - 4 Scientific discovery:
 - **theory of multiples** (Merton): similar discoveries tend to be made by multiple researchers within the same timeframe because they are drawing upon existing ideas and evidence which points in a particular direction; this implies, for example, that if Einstein did not come up with his “theory of relativity,” someone would have around the same time
 - is scientific **invention** an individual or social process?
 - **normal vs. revolutionary science** (Kuhn): science advances in two ways, (1) normal science builds incrementally on existing ideas and methods, and (2) revolutionary science (also called a “paradigm shift”) involves creative leaps by reconceptualizing existing information
- **Technology:** applying scientific principles to solve practical problems
- 1 Technology is diffused through the society as other cultural innovations
 - 2 Technology is one of the major sources of social change (i.e., electricity, automobile, internet, etc.) and sociologists are often interested in what changes these new technologies introduce (*this is a great idea for essay topics!*)
- ③ **Scientific-technological Revolution:** in the 20th century, science became possibly the most important institution in modern societies and the major point of difference between developed and developing nations

Key Ideas:

Science, technology, science policy, technological innovation, technological diffusion.