

What Is the History, Philosophy, and Sociology of Science (or HPS)?

There is tremendous variation in how HPS (sometimes referred to with an earlier term: Science and Technology Studies or STS) is defined, because scholars with different theoretical and disciplinary backgrounds have gathered at different universities and interpret HPS differently.

For instance, some HPS scholars come from philosophy and are more interested in the philosophy of science and technology. Others might come from a Marxist background within sociology and are more interested in the political economy of science and technology. Still others might come from an historical background and are more interested in the historical origins and trajectories of science and technology.

Yet, across all these disciplines, there are several robust themes that turn up in most definitions.

1. science and technology are social institutions
 - A. both are constructed and maintained through social interaction of humans
 - B. there is nothing sacred, divine, or essential to science and technology
 - C. this is similar to the social construction of other institutions such as government, the economy, religion, and the family
2. science and technology are embedded within society
 - A. they do not exist in a vacuum
 - B. we must examine how society affects science and technology and how science and technology affect society
 - C. this means examining how social, cultural, political, and economic phenomena affect the origins, trajectory, processes, and products of science and technology AND vice versa
3. HPS creates its own understanding of science and technology
 - A. does not just accept conventional accounts of science and technology by practitioners
 - B. makes conventional wisdom and traditional accounts about science and technology problematic by questioning them
 - C. scientists and technologists are treated like all other social actors; what they say and do are not taken at face value but are analyzed and scrutinized
4. examines the relationships between science and technology
 - A. for instance, how do discoveries in science lead to technological change
 - B. and how does technology change lead to scientific discoveries
5. most concerned with longitudinal analysis (study of change or stasis over time)
 - A. processes of scientific and technological innovation and development
6. prepares practitioners of HPS with valuable life and career skills
 - A. you do not receive technical information to be deployed in the requisite order
 - B. you develop critical thinking and analytical skills for “why?” questions
 - C. prepares you to be more active and effective participants in public debates about science and technology
 - D. potential careers in the management of scientific and technological research, science and technology policy, the design and maintenance of museum exhibits and archival collections, science and technology journalism, science advice and expert assessment, and science, technology, and the law

Perhaps the most comprehensive account of what HPS (again, or STS in earlier years) is comes from the National Science Foundation.

According to the NSF, the field of HPS/STS . . .

includes research on the interactions among science, technology and society, including such topics as:

- (1) the construction of scientific and technological knowledge and institutions;
- (2) the relations between science and other social institutions and groups; and
- (3) processes of scientific and technological innovation and change

includes research on

- (1) the nature and development of science and technology, both in the past and present,
- (2) and on differences in the nature of theory and evidence in various fields of science and engineering

attempts to provide a systematic understanding of the character and development of science and technology, including their cultural, intellectual, material and social dimensions