

History 295: Theories of Scientific Change
Wednesdays 2-4:50pm 5288 Bunche Hall
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Students from all fields are welcome. Variation in intellectual interests will enhance the course. If you are not in the history department, please get a PTE number from the instructor.

We will address a wide range of theories about how techno/scientific knowledge changes. We will include all the biological, information, mathematical, physical, and social techno/sciences. The phrase "theories of scientific change" points to a canonical set of debates; we will explore that canon, its critics, its possibilities, and its limits.

At the beginning of the twentieth century many European scientists thought they had developed a more perfect way of knowing. Some began to describe that process systematically so that it could be emulated by all researchers. That project continues in the present. It is useful to know about their accomplishments and their difficulties, whether or not we are interested in supporting their goals. For example, I argue that using their epistemological forms to challenge their goals is self-defeating.

The phrase 'theories of scientific change' points to a very specific set of debates, centered in western Europe and north America during the twentieth century, especially the first decade, the 1930s, circa 1955-1965, and circa 1985-1995. Those debates were primarily conducted within the discursive traditions of European philosophy and focused on physics as practiced in universities since 1850. Key figures in this particular narrative include: Canguilhem, Duhem, Feyerabend, Fleck, Foucault, Hanson, Harding, Haraway, Holton, Keller, Knorr-Cetina, Kuhn, Latour, Lakatos, Polanyi, Popper, Quine, Shapin, Wittgenstein, Woolgar, etc.

The terms of these debates are generally assumed to have been defined by logical positivists, then taken up by the analytic philosophers of language and logic, and later revised by various sociologists of knowledge and feminist theorists. The key terms in those debates include: objectivity, truth, refutation, testable, evidence, observation, method, epistemology, etc [note the singular generics]. We also will attend what is missing in this canon.

Do these theories explain how certain bodies of knowledge become stabilized and privileged at specific times and places, and how such stabilizations and privileges can circulate across time and space? Do they explain variations in how knowledges are made in different cultural, economic, political, and social domains [including virtual ones] with different kinds of resources? Do they explain how multiple webs of relationships among people have shaped and been shaped by these activities? Do they explain different forms of knowing and ways of transmitting those forms? Salient features of these processes include ideas, artifacts, practices, skills, techniques [including computing], practitioners, bureaucracies, universities, governments, corporations, markets, regulations, and public cultures.

Students can elect to write papers on topics chosen in consultation with me. Options include:

1. an annotated, analytic bibliography of some set of these materials.
2. examine particular themes or the work of specific theorists
3. use a set of these theories to explore your proposed dissertation topic.
4. a historiography of the canon

A sample bibliography will be distributed to class members.

REQUIREMENTS FOR THE COURSE:

1. Attendance at all classes.
2. Active participation in class discussion.
3. 15 double-spaced pages of writing
4. There are no examinations

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