

College of Arts and Sciences

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Social Science Research in the College of Arts and Sciences Spans a Vibrant Spectrum

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From bio-psychological and cognitive studies to economic, social, and political structures, to the comparative study of cultural systems, and political philosophy, the social science disciplines are wide-ranging in Cornell’s College of Arts and Sciences (A&S). Approaches differ in both the data they rely on and the methods they practice. As a result, the subject matter of the social sciences is complex. The research is bio-cultural, historical, economics-based. It symbolizes animals that live within a broad variety of institutional structures. The various social sciences cover all of this territory in different ways and are built on dynamic combinations of expertise. Furthermore, the social sciences are marked also by the twin sources of their growth and vitality, disciplinary strength and interdisciplinary expertise and collaboration.

It is thus impossible to give a simple snapshot of the state of social science research in Arts and Sciences. Here, however, are a few characterizations of social science research by faculty in a variety of substantive research areas, based on widely diverging methods of analysis, and conducted in departments with very different substantive orientations.

In the past three decades, the field of science and technology studies, with Cornell’s department in a leading position, has developed exciting new ways of pushing forward the social and cultural analysis of science. In addition to treating science and technology as significant influences on contemporary societies, researchers in the Department of Science and Technology Studies (S&TS) also examine how scientific research and technological development are themselves infused with everyday knowledge, economic incentives, and political alignments.

Michael E. Lynch, Science and Technology Studies, has examined, over the past 25 years, the practical crafts and informal discourse produced in day-to-day laboratory work. He has also studied testimony and argumentation in criminal trials and government tribunals. Funded by the National Science Foundation, Lynch’s current research ties together both strands of work. He is now researching the way scientific evidence is presented and tested in trial courts and admissibility hearings. This project focuses on the contentious legal-scientific history of forensic DNA “fingerprinting” and more recent controversies about the scientific adequacy of the established practice of fingerprint examination.

Fingerprinting was once the “gold standard” of forensic science. When DNA profiling methods were first used in criminal investigations, the label “DNA fingerprinting” was used to confer credibility on the new technique. After many court challenges and arguments in the scientific literature, DNA profiling is now widely recognized as the “gold standard,” and the status of fingerprinting is being called into question. An inversion of credibility has taken place, as DNA evidence is accepted as a certain basis for questioning all other forms of evidence: eyewitness testimony, confessions, and older forms of forensic evidence.

The older namesake of DNA fingerprinting is now being challenged in the U.S. courts, such as in the highly publicized case, *U.S. v. Llera-Plaza* (2002). The judge in *Llera-Plaza* initially ruled that fingerprint examiners should no longer speak of “matching” fingerprints, because such language was “subjective,” but after protests from the FBI and forensic community, the judge later retracted this ruling, and for the time being at least fingerprint matches are again viewed as “objective.” Lynch is conducting a study of such challenges and decisions in collaboration with Simon Cole, who received his Ph.D. at Cornell and recently completed a book on the history of fingerprinting.

Sidney G. Tarrow, Government; Sociology, is a long-time scholar of political participation and social movements. Tarrow’s current project focuses on a new generation of transnational nongovernmental organizations that use the tools of transnational protest to influence the policies of states and international institutions. While some observers see transnational activism as no more than the extension of unruly protest across borders (that is, restless college students with too much money in their pockets), others see it as the contentious counterpart of the dedicated nongovernmental organizations that work steadily to influence the policies of international institutions.

Tarrow's project aims to advance understanding of the growing ways in which citizen groups try to influence states and international institutions by organizing across borders. Supported by a Ford Foundation grant, Tarrow and a group of Ph.D. students are relying on the analysis of statistical data, interview material, and comparative case analyses to map transnational activities in a variety of sectors and, ultimately, to map the connections between them.

Isabel V. Hull, History, is a specialist in European and German history. Her most recent book project, now in production, is prehistory to the genocide practiced by the Third Reich. Instead of stressing ideology, she examines the military culture that unintentionally prepared the ground for the widespread institutional acceptance of "final solutions" to intractable problems. Military culture consists of the cognitive habits and default practices that military institutions develop as they operate in their environment. The German army was quite similar to other late-nineteenth-century western militaries, which all tended to overuse force in difficult situations. But Germany's constitution shielded the army much more completely from outside intervention and feedback, so this tendency became reinforced, and ultimately suffused and distorted planning, training, and the default practices of the army in operation. Hull's book analyzes and compares military culture(s) and then examines the German army's conduct in the colonies, in international interventions, and in the First World War.

Germany's stronger, more rigid military culture aimed, in all its operations, at a total victory of unlimited force, regardless of cost or consequences. In Southwest Africa in 1904–07 that resulted in the deaths of 80 percent of the Herero and 50 percent of the Nama peoples. In German East Africa (1905–08) 200,000 to 300,000 civilians fell victim to these practices. In China during the Boxer Revolt (1900–02), German troops wrought greater destruction than the other seven foreign contingents sent to "restore order."

None of this devastation was ordered as policy; it developed ad hoc from the default practices of the army in operation. These same habits suffused conduct in World War I during which occupied civilians were reduced to slave laborers, economies were entirely requisitioned, and the total destruction of Germany itself was seriously contemplated in order to fulfill fantastic standards of military necessity. World War I was more "total" and its "irrationality" more institutionally "rational" than we have understood. Genocide is thus one kind of "final solution" that military practices tended to produce. In World War I, the habits of military culture became idealized and raised to ideology where they joined with pre-existing racism and anti-Semitism, ultimately to form National Socialism and the murderous campaign abroad and at home, leading to "the final solution"—Auschwitz.

David B. Grusky, Sociology, researches the determination and role of social class. In modeling behavior, social scientists have often resorted to the concept of "social class," where this is typically operationalized in terms of five or six aggregate categories (such as professional, manager, craft worker). These categories are presumed to affect social attitudes and behavior through a simple rational action mechanism. For example, managers may be politically conservative because their interests (in low taxes, reduced redistribution, and so forth) are best represented by conservative parties, while lower class children may invest less in higher education because they regard it as unlikely to pay off (via, for example, higher income).

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Frank DiMeo/CU



Isabel Hull, History



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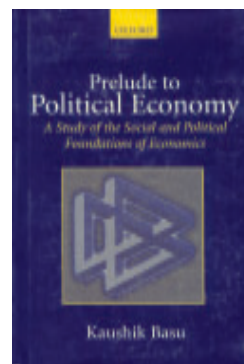
For the most part, effects of this postulated sort can indeed be teased out, but they have hardly been strong enough to justify efforts to represent social class as the star variable of the social sciences. The evident weakness of such class effects has led many postmodernist commentators to proclaim that the concept of social class, while perhaps useful in the early-industrial period, is now all but dead and should be replaced with new post-class models of social behavior.

In research with Kim Weeden, Sociology, and others, David Grusky has suggested that reports of the death of social class are much exaggerated and that the effects of class live on in rather strong form. The key insight is that class models become much more powerful when they are operationalized at the “micro-class” level (for example, sociologist, physician, carpenter, printer) rather than the more conventional aggregate level (such as professional, craft worker). At this highly detailed level, one finds deeply institutionalized categories (occupations) that are explanatorily very powerful, more so than the aggregate constructs that class analysts have long preferred. There is much research still to be completed, but results to date suggest that individual behavior is indeed strongly class-based. This is contrary to prevailing social scientific wisdom as well as conventional lay beliefs about the autonomy of individuals to choose or formulate political beliefs, to freely make decisions about various forms of institutional participation, or to compete fairly and openly for the best jobs regardless of the social class into which they were born.

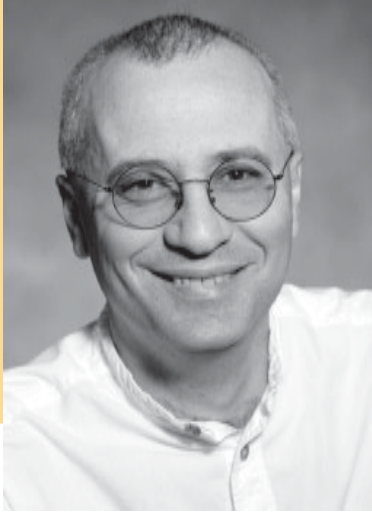
Two areas—International Labor Standards and global child labor; and political economy, strategic choice theory, and welfare—form the recent research agenda of Kaushik Basu, Economics. Basu has contributed to the contentious debate on whether and how the global community can intervene to uphold minimal labor standards (including the abolition of child labor) in developing countries. Politicians, lobbyists, and even many ordinary citizens often take simple, one-line positions on the matter, for example, seeking a ban on importing products that may have violated such labor standards as employing children or not paying workers more than a minimum wage.

However, when one takes realistic account of the conditions prevailing in developing countries, it becomes evident that there is no one simple policy line that can be taken on these matters. Indeed, some of the simple policy prescriptions often play into the hands of protectionist lobbies. Basu’s research, published in leading economics journals and in popular magazines, like *Scientific American* (forthcoming), have helped clarify how to craft policy in this complex terrain. With several of his students working with him on the research, Basu hopes to expand on this research agenda in the coming years.

Basu’s research on political economy grew out of a new course that embeds economic life in its broader political, social, and cultural settings. This research has led to a range of interdisciplinary publications that investigate the meaning of coercion and power (topics that find so little room in conventional economics), and grapple with the question of how we can model “government.” His long-standing interests in the theory of rational choice and strategic behavior also led him to develop a game called the Travelers’ Dilemma, which has attracted considerable attention among fellow researchers and has led to laboratory experiments. Some of this recent research on political economy and rational choice led to his book, *Prelude to Political Economy: A Study of the Social and Political Foundations of Economics* (Oxford University Press, 2000).



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Shimon J. Edelman, Psychology, conducts research in the fields of human and machine cognition, in particular, visual recognition and natural language processing. The concept of similarity provides a common basis for the study of these fields. Human perception of visual shape similarity seems especially impressive when one realizes that people never see the same object twice: objects appear different from various viewpoints and under changing illumination; moreover, two instances of a given class of objects generally do not look exactly the same. In addition to perceiving similarity among objects and scenes, observers are also sensitive to their structural make-up—an important factor in categorization and in reasoning about the visual world.

Structure-related tasks are ubiquitous in cognition; they arise in language processing as well as in vision. The brain's production and assimilation of the structured cues used to solve these tasks is constrained by its neuronal architecture and by general principles of information processing. Edelman develops mathematical solutions for representing structure and similarity in visual perception and recognition. He assesses these solutions as models of human performance, and brings this theoretical understanding to bear on data from neurobiological studies of cognition in the brain.

The approach of Edelman's research is exemplified by his ongoing study of the processing of structure in vision and language. Edelman has identified common statistical principles (such as co-occurrence of stimuli) the brain uses in learning structured representations, and has cast them into a biologically relevant computational model that is being tested in behavioral experiments.

These sketches of research illustrate the diversity of social science questions and approaches in the College of Arts and Sciences. In its questions and approaches, social science research shares features with both the sciences and the humanities. The generation of social science knowledge can be cumulative or noncumulative; it can move incrementally or disjointedly; and it can take both theoretical and applied forms. The research described illustrates the range of the college's vibrant social science community.

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