Independent Research Laboratories, Centers, and Institutes

Vice Provost and Dean of Research and Graduate Policy and Dean of the Independent Laboratories, Centers, and Institutes: Charles H. Kruger
Associate Dean of Research: Patricia Jones
Associate Dean of Graduate Policy: Thomas Wasow

Independent Research Laboratories, Centers, and Institutes perform multidisciplinary research that extends beyond the scope of any one of the University's organized schools.

The following laboratories, centers, and institutes report to the Vice Provost and Dean of Research and Graduate Policy:

Center for the Study of Language and Information
Edward L. Ginzton Laboratory
W. W. Hansen Experimental Physics Laboratory
Institute for International Studies
Institute for Research on Women and Gender
Laboratory for Advanced Materials
Stanford Humanities Center
Stanford Institute for Economic Policy Research

The Hoover Institution on War, Revolution and Peace and the Stanford Linear Accelerator Center (SLAC) report to the President and Provost. SLAC is independently operated under a contract with the Department of Energy.

Following is a description of each organization's activities, including research activities and, where applicable, courses offered.

STANFORD INSTITUTE FOR ECONOMIC POLICY RESEARCH

Director: John B. Shoven

The primary mission of the Stanford Institute for Economic Policy Research (SIEPR) is to encourage and support research on economic policy issues in areas such as economic growth, technology policies, environmental and telecommunication regulation, tax reform, international trade, and monetary policy. SIEPR pursues four interrelated goals in support of this mission: (1) stimulating graduate student and faculty research on economic policy issues of continuing importance; (2) communicating its findings broadly; (3) building a community of scholars conducting research on policy issues; and (4) linking the policy community at Stanford with decision-makers in business, government, and academia.

SIEPR is a University-wide research center, involving economists from the schools of Business, Engineering, Law, Humanities and Sciences, as well as the Hoover Institution and the Institute for International Studies. Affiliated faculty and students maintain appointments in their home departments while working on SIEPR projects. In addition, scholars visiting from other institutions may apply for affiliation with SIEPR.

Much of the research at SIEPR takes place in research centers or research programs. The Center for Research on Economic Development and Policy Reform (Anne O. Krueger, Director) fosters research on the economic problems of developing economies and economies in transition, as well as analyzing the political aspects of economic policy reform and historical episodes of reform. For more information about this program call (650) 725-8730. The Center for Research on Employment and Economic Growth (Paul Romer, Director) is focusing on the 21st century, the relationship between long-term economic growth, the economic success of individuals and families in their jobs and careers, and the role played by higher education and how it can supply workers and technology in the work force.

Research programs within SIEPR and their directors are Energy, Natural Resources, and the Environment Program (James L. Sweeney); the Finance Program (Michael J. Boskin and John B. Shoven); the High Technology Impact Program (Paul A. David); the International Economy Program (Anne O. Krueger); the Program on the Japanese Economy (Masahiko Aoki); the Macroeconomics and Monetary Policy Program (John B. Taylor); the Program in Regulatory Policy (Roger Noll); the Tax and Budget Policy Program (B. Douglas Bernheim and John B. Shoven); and the Technology and Economic Growth Program (Timothy Bresnahan, Ralph Landau, and Nathan Rosenberg).

SIEPR does not offer courses for academic credit, admit students, or award degrees. SIEPR is located on the first floor of the Landau Economics Building, 579 Serra Mall, at the corner of Serra and Galvez Streets, telephone (650) 725-1874, or see http://www.siepr.stanford.edu .

EDWARD L. GINZTON LABORATORY

Director: David A. B. Miller

The Ginzton Laboratory houses the research activities of a number of faculty members from the departments of Applied Physics, Electrical Engineering, and Mechanical Engineering. The multidisciplinary foundations of faculty, students, and research provide a dynamic academic environment for a broad spectrum of scientific research including acoustic and optical techniques for semiconductor measurements, biophysics, fiber optics, high temperature superconductors, laser physics and applications, mesoscopic devices, microelectromechanical devices and systems, optoelectronic devices and systems, scanning optical microscopy, solid state physics, squeezed light, tunneling and force microscopy, and ultrafast and nonlinear optics.

W. W. HANSEN EXPERIMENTAL PHYSICS LABORATORY (HEPL)

Director: Robert L. Byer

HEPL is an independent laboratory celebrating over 50 years of fundamental science and engineering research. HEPL faculty and students are engaged in research in accelerator physics, astrophysics, dark matter in the universe, free electron lasers, fundamental tests of relativity in space, gamma ray observations, gravitational wave detection, quantum condensed matter, and space based solar physics studies. Many of the programs involve satellite-based studies in fundamental physics and engineering.

STANFORD HUMANITIES CENTER

Director: Peter Stansky
Associate Director: Susan E. Dunn

The Stanford Humanities Center promotes humanistic research and education at Stanford and nationwide. In particular, it stresses work of an interdisciplinary nature, accomplished through the following programs: one-year residential fellowships for advanced research by Stanford faculty, faculty members from other institutions, and Stanford graduate students; public presentations (through lectures, colloquia, conferences, and publications) of new research, interdisciplinary explorations, and fundamental issues in the humanities; research workshops that bring faculty and graduate students together regularly to advance ongoing research on topics of interdisciplinary interest.

Fellows are selected on the basis of an open competition. They pursue their own research and participate in a weekly seminar at the center throughout the year. Faculty fellows also contribute to the intellectual life of the Stanford community through activities such as giving departmental courses, participating in ongoing research workshops, or organizing conferences. The courses given by fellows in 2000-01 are listed below.

COURSES

ENGLISH

371. Seminar: Chaucerian Inheritances—The Production of Literary Authority
4-5 units, Win (Kuskin)

HISTORY

250B. Undergraduate Colloquium: Constitutional Interpretation in History and Theory
5 units, Win (Rakove)

INTRODUCTION TO THE HUMANITIES

43. Self-Reflections: The Examined Life
5 units, Aut (Anderson, Bobonich, Gelber)

PHILOSOPHY

285. Beyond Anthropocentrism?
3 units, Spr (Welsch)

RELIGIOUS STUDIES

270. Science and Religion
4 units, Aut (Bergman, Eisen)

SPANISH AND PORTUGUESE

253E. The Modern Imagination and Mexico's Ancient Books
3-5 units, Aut (Brotherston)

INSTITUTE FOR INTERNATIONAL STUDIES (IIS)

Director: David Holloway (on leave 2000-01)
Acting Director: Coit Blacker

The Institute for International Studies promotes individual and collaborative research on contemporary, policy-relevant issues that are international and interschool in character. Working in partnership with the seven schools at Stanford (Business, Earth Sciences, Education, Engineering, Humanities and Sciences, Law, and Medicine) and with the Hoover Institution, IIS fosters excellence in research and teaching across disciplinary, school, and national boundaries. The priority areas of research are in the fields of international and regional peace and security; economic development and political change in East and Southeast Asia; the global environment challenge; and the delivery of health care in a comparative perspective.

Opportunities for undergraduate research include the Goldman Interschool Honors Program in Environmental Science, Technology, and Policy and the CISAC Interschool Honors Program in International Security. The institute also manages 10 undergraduate and graduate fellowship programs.

The constituent centers and programs within IIS include the Asia/Pacific Research Center, the Bechtel Initiative for Global Growth and Change, the Center for Environmental Science and Policy, the Center for Health Policy, the Center for International Security and Cooperation, the European Forum, and the Stanford Japan Center—Research.

In the areas of public service and outreach, IIS administers the Stanford Program on International and Cross-Cultural Education (SPICE), which develops internationally-oriented curricula for use by public school teachers.

The IIS central office is located at 100 Encina Hall, telephone (650) 723-4581. For more information about particular IIS programs, contact the programs directly (area code 650):

Asia/Pacific Research Center, 723-9741
Bechtel Initiative on Global Growth and Change, 723-1737
Center for Environmental Science and Policy, 725-2606
Center for Health Policy, 723-1020
Center for International Security and Cooperation, 723-9625
European Forum, 723-4716
Inter-University Center for Japanese Language Studies, 725-1490
Stanford Program on International and Cross-Cultural Education (SPICE), 723-1116
Stanford Japan Center-Research, 011 75-752-7073, ext. 40

UNDERGRADUATE PROGRAMS

INTERSCHOOL HONORS PROGRAM IN ENVIRONMENTAL SCIENCE, TECHNOLOGY, AND POLICY

The Center for Environmental Science and Policy (CESP) coordinates a University-wide interschool honors program in environmental science, technology, and policy. Undergraduates planning to participate in the honors program are required to pursue studies in environmental sciences, technology, and policy, with a concentration in a single discipline. After completion of the prerequisite units, students join small group honors seminars to work with specific faculty members in the environmental field on an honors thesis that incorporates both scientific principles and the policy aspects of selected environmental issues.

Courses in environmental studies appear under the course listings of the schools of Earth Sciences, Engineering, and Humanities and Sciences. Information about and applications to this program may be obtained from CESP, E401 Encina Hall East; telephone (650) 723-5697.

COURSES

195. Interschool Honors Program in Environmental Science, Technology, and Policy—Students from the schools of Humanities and Sciences, Engineering, and Earth Sciences analyze important problems in a year-long small group seminar. Combines research methods, oral presentations, preparation of an honors thesis by each student, and where relevant, field study.
9-15 units, Aut, Win, Spr (Naylor, Falcon, Freyberg, Goulder, Matson, Schneider)

INTERSCHOOL HONORS PROGRAM IN INTERNATIONAL SECURITY

The Center for International Security and Cooperation (CISAC) coordinates a University-wide interschool honors program in international security. Students selected for the honors program will fulfill individual department course requirements, attend a year-long seminar on international security research, and produce an honors thesis with policy implications. In order to qualify for the program, students must demonstrate sufficient depth and breadth of international security course work. Ideally, applicants to the program should have taken Management Science and Engineering (MS&E) 190/Political Science 138 (International Security in a Changing World), MS&E 193/Political Science 134P (The Role of Technology in National Security), Political Science 134A (Strategy, War, and Politics), and at least one related course such as Economics 150 (Economics and Public Policy), Science, Technology, and Society 110 (Ethics and Public Policy), Sociology 160 (Formal Organizations), Sociology 166 (Organizations and Public Policy), and Political Science 143S (Major Issues in International Conflict Management).

Information about and applications to this program may be obtained from the Center for International Security and Cooperation, E201 Encina Hall East, telephone (650) 723-1625.

COURSES

199. Interschool Honors Program in International Security—Students from the schools of Humanities and Sciences, Engineering, and Earth Sciences meet in a year-long seminar to discuss, analyze, and conduct research on international security. Combines research methods, policy evaluation, oral presentation, and preparation of an honors thesis by each student.

9-15 units, Aut, Win, Spr (Chyba, Fearon, May, Lederberg, Sagan, Stedman)

LABORATORY FOR ADVANCED MATERIALS

Director: Alexander L. Fetter

The Laboratory for Advanced Materials (LAM) supports the research activities of a number of faculty members from the departments of Applied Physics, Chemical Engineering, Chemistry, Electrical Engineering, Materials Science and Engineering, Mechanical Engineering, and Physics. The multidisciplinary foundations of faculty, students, and research provide a dynamic academic environment for a broad spectrum of scientific research including high temperature superconducting materials and devices, mesoscopic devices, magnetic recording and storage media materials, electronic materials, opto-electronic materials, nanoprobe materials and devices, highly correlated electronic systems, computational materials science, condensed matter theory and physics, polymeric and biological materials, crystal growth, and thin film synthesis of complex oxides.

The foundation of the research performed at LAM is the Center for Materials Research (CMR). CMR is one of many National Science Foundation Materials Research Science and Engineering Centers (MRSECs) located at various U.S. universities. It provides both analytical and synthesis facilities for the Stanford materials research community and supports multidisciplinary materials research projects involving faculty from many academic departments. It also has programs for undergraduate research, women, and minorities and for outreach to local high schools.

CMR supports a wide range of analytical facilities for advanced materials characterization. This includes electron microprobe analysis (EMPA), micro Raman spectroscopy, Rutherford backscattering (RBS), scanning electron microscopy (SEM), scanning probe microscopy (SPM), transmission electron microscopy (TEM), x-ray diffraction analysis, and x-ray photoelectron spectroscopy (XPS). To serve the synthesis and materials fabrication needs of the community, CMR also supports the vapor phase synthesis facility and bulk crystal growth capabilities. By special arrangement through CMR, high resolution transmission electron microscopy (TEM), nanoindentation, nuclear magnetic resonance spectroscopy (NMR), variable angle spectro-ellipsometry, as well as x-ray absorption spectroscopy techniques (that is, EXAFS, NEXAFS, SEXAFS) and core level photoemission and photoelectron diffraction techniques are available to the materials research community through the Stanford Synchrotron Radiation Laboratory (SSRL).

In addition to the multi-investigator, interdisciplinary research group (IRG) programs, CMR also sponsors seed research projects for new and risky ideas. Its professional staff also conduct research and development of new tools and techniques in areas related to advanced materials synthesis and characterization.

The Laboratory for Advanced Materials is housed in the McCullough Building and the Moore Materials Research Building.

CENTER FOR THE STUDY OF LANGUAGE AND INFORMATION (CSLI)

Director: Byron Reeves

CSLI is devoted to research in the emerging science of information, computing, and cognition. It is an interdisciplinary endeavor, bringing researchers together from academe and industry in the fields of artificial intelligence, computer science, linguistics, logic, philosophy, and psychology. CSLI's researchers are united by their common interest in the communication and information processing that ties together people and machines. Their blend of academic disciplines, communication, education, linguistics, philosophy, psychology, along with computer science, gives them a unique perspective on the human side of human interface problems. Like the interface problem, projects at CSLI have both an applied side and a theoretical side. The more applied projects are located in the Interface Lab, and the more theoretical projects are located in the Cognitive Science Center.

On the applied side, researchers are pursuing a wide variety of topics, including machine learning, planning and reasoning, machine-aided translation, language acquisition, text understanding, computer languages, software design strategies, human interface design, access to computers and the internet for people with disabilities, and distance education. On the theoretical side, roughly half the projects deal with languages (natural and computer), and the vehicles by which information is communicated between agents. The others deal with a variety of questions involving the acquisition and manipulation of information: how agents acquire and use information to guide action; what information processing architectures are best suited to various tasks; how representational format affects information processing and human comprehension, and so on.

Course work related to the research at CSLI can be found in the "Program in Symbolic Systems" section of this bulletin.

CSLI is located at the corner of Campus Drive West and Panama Street, in Ventura Hall and Cordura Hall; telephone (650) 723-3084.

INSTITUTE FOR RESEARCH ON WOMEN AND GENDER

Director: Laura L. Carstensen

During the last decade, research on women and gender has had a profound influence on the social and medical sciences, and the humanities. Since its founding, the Institute for Research on Women and Gender's primary mission is to support scholarship on subjects related to women and gender and to organize educational programs that communicate these findings to a broader public.

Stanford faculty, staff, graduate students, and members of the community work together to stimulate a more informed analysis of issues concerning gender.

Institute projects span a wide range of disciplines but rest on certain shared premises: that gender is a vital category of analysis for contemporary scholarship and policymaking and that the experiences of women as individuals and as a group can best be understood within their historical, social, and cultural contexts. The institute sponsors interdisciplinary research seminars and conferences that examine gender issues in areas such as art, education, employment, family structures, health care, history, law, literature, and psychology. Many scholarly publications have resulted from these activities.

HOOVER INSTITUTION ON WAR, REVOLUTION AND PEACE

Director: John Raisian

The Hoover Institution, founded in 1919 by Stanford alumnus Herbert Hoover, is a public policy research center where a distinguished group of scholars debate, study, refine and disseminate ideas designed to strengthen society within the context of three core values: individual freedom, private enterprise, and representative government.

Three thematic areas have been established that focus on the interaction of politics and government. Research centers on three broad programs:

American Institutions and Economic Performance, which explores ways to enable the U.S. economy and education, legal, and legislative systems to perform better, thereby providing an ever-higher quality of life, increased economic opportunity, and greater economic freedom for all citizens.

Democracy and Free Markets, which seeks to understand and foster both the development of democratic processes and institutions and the shift from state control of economies to greater reliance on free markets.

International Rivalries and Global Cooperation, which examines not only questions of war and peace but all types of rivalries and cooperation (economic, political, religious, and cultural) and focuses on interrelationships between countries.

Studies within each of these three areas typically address issues relating to balancing government and private initiatives, promoting individual freedom, and strengthening free-market economies and democratic institutions.

STANFORD LINEAR ACCELERATOR CENTER (SLAC)

Director: Jonathan Dorfan

The Stanford Linear Accelerator Center is devoted to experimental and theoretical research in elementary particle physics and astrophysics, to the development of theory and new techniques in high energy accelerators, and to research and development in particle detectors. The Stanford Synchrotron Radiation Laboratory (SSRL), a division of SLAC, operates the SPEAR storage ring as a source of intense vacuum ultraviolet and x-ray beams for research in biology, chemistry, material science, and physics. The center is on 425 acres of Stanford property west of the main campus and is operated under a contract with the Department of Energy.

SLAC is operated by Stanford as a national facility so that qualified scientists from universities and research centers throughout the country and world, as well as those at Stanford, may participate in the high energy physics research program of the center. Stanford graduate students may, with the approval of their departments, carry out research for the Ph.D. degree with members of the SLAC faculty. Graduate students from other universities also participate in the research programs of visiting groups.

Research assistantships are available for qualified students by arrangement with individual faculty members. There are also opportunities for summer employment in the research groups at the center. Interested students should contact Professor Schindler, the Graduate Student Adviser.

STANFORD SYNCHROTRON RADIATION LABORATORY (SSRL)

Director: Keith O. Hodgson

SSRL is a national research facility supported by the Department of Energy for the utilization of synchrotron radiation for research in the natural sciences, medicine, and engineering. SSRL is a division of the Stanford Linear Accelerator Center.

SSRL has research programs in accelerator physics and development of advanced sources of synchrotron radiation, including short-wavelength free electron lasers. The lab is interdisciplinary with students from the following Stanford departments actively pursuing degrees: Applied Physics, Chemical Engineering, Chemistry, Earth Sciences, Electrical Engineering, Materials Science and Engineering, Physics, and Structural Biology.

Students interested in working at the facility should contact a member of the SSRL faculty, one of the assistant directors, or other members of the Stanford faculty who use SSRL in their research programs.