H&S — The Heart & Soul of Stanford

The School of Humanities and Sciences is home to Stanford University’s liberal arts education and scholarship, awarding nearly 80 percent of the university’s undergraduate degrees and more than 40 percent of doctoral degrees. It is home to Stanford’s basic research, where free, open, and critical inquiry are pursued at the frontiers of new knowledge. H&S provides strength at Stanford’s core, which advances the university’s multidisciplinary initiatives and the applied and professional disciplines in each of its seven schools. Excellence at Stanford depends on excellence in H&S, the “heart & soul” of Stanford.
MESSAGE FROM THE DEAN

My most important job as dean of the School of Humanities and Sciences is to ensure the excellence of Stanford’s core school by focusing on the quality of the school’s faculty and our scholarly and educational programs. Our work to sustain and enhance undergraduate and graduate educational programs is matched in parallel by our efforts on critically important faculty searches and recruitments. In the past two years, more than 30 outstanding new faculty colleagues have joined us. They bring to Stanford incredible energy and creative, exciting new scholarship.

With our veteran colleagues and with new ones, we are always engaged in the job of planning for innovation and for increasing the excellence of our programs. I have seen faculty working creatively and earnestly to improve and revise courses and teaching approaches. A recent example is the mathematics department. Several years ago, the math faculty decided to reexamine and revise the departmental curriculum. They developed new, distinctive courses from the freshman year on, introduced new teaching approaches, and made it possible for students to get involved in research at an early stage. Over the past five years, the number of math majors has more than tripled in response to this exciting new set of programs. This is one example of many—and one that shows how strengthening core disciplines provides benefits beyond H&S that extend to the Schools of Engineering, Business, Medicine, Earth Sciences, Law, and Education.

New Directions

As the math example illustrates, Stanford is a place of constant innovation and renewal. As we look to the next few years, we anticipate a new initiative in the arts at Stanford. We seek to make our offerings in the three arts departments—art and art history, music, and drama—ever more vibrant and enriching for those on campus, and we are very excited about beginning a new major in Film and Film Studies that will blend practice and scholarship in the best Stanford tradition. We also are increasing partnerships between the Cantor Arts Center and our academic departments, and between Lively Arts and many departments in the school.

Another major initiative for the school is the extension of our scholarship and educational offerings related to international topics. We hope to expand the international subjects in our academic departments, and between Lively Arts and many departments in the school.

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Beyond the new arts and international initiatives, we are building new programs in astrophysics and in archaeology. Each of these is a home to exciting new research and educational programs, and each is creating new opportunities for interdisciplinary and interdepartmental collaboration.

Making the Future Possible

As we pursue exciting new programs and multidisciplinary research, we are mindful that we are not venturing forth alone. The William and Flora Hewlett Foundation has been a true partner on our path to innovation and discovery in H&S. With an unprecedented gift of $400 million to Stanford, the Hewlett Foundation created the $300 million Hewlett Challenge for H&S, with an additional $100 million benefiting Stanford’s Campaign for Undergraduate Education. The Hewlett Challenge is a major force in transforming our school and Stanford, as the gifts of our most generous donors receive Hewlett matching funds. These gifts of endowment are providing strength at the core of Humanities and Sciences, in the “heart and soul of Stanford,” enabling us to sustain excellence while also embarking in new directions.

Stanford is not a place where faculty and students rest on their laurels and say they have arrived—which is what continues to make this an ever evolving and ever extraordinary place. It is a privilege and joy to be a part of it, and I am truly grateful both to my colleagues and to our many friends, donors, and volunteers, who make it all possible.

Sharon R. Long
The Vernon R. and Lysbeth Warren Anderson Dean of Humanities and Sciences and the William C. Steere Jr.–Pfizer Inc. Professor in Biological Sciences

With so many great options, what’s a student to do?

Advice from the dean of Stanford’s largest school

There are interesting symmetries between how we, as faculty and leaders, try to improve the major’s work at the same time, students face the eternal problem: “What major should I choose?” The guidance I offer students is to go where their enthusiasm leads them.

I want students to be excited about their studies, the more so as they progress. I hope that students will become so immersed in their subjects that they are willing to sound foolish in their enthusiasm. Choosing a subject on the basis of interest and enthusiasm will contribute to a lifetime love of learning and can lead to any number of careers.

Whatever the subject—art, history, anthropology, chemistry, mathematics—study within the major will take students into enough depth that they learn to go beyond the obvious, to criticize, to think independently. And whatever our students will do in their lives, as professionals, as friends, as partners and parents, as team members or leaders, they will need this skill.

The quality of this lesson, of how to think things through, transcends the topic of study, and will carry students through their life’s chosen course or its accidental diversions. I believe we should continue to encourage our students to pick a major in a subject they love; their learning will be a gift not only to them throughout their lives, but also to all whose lives and work they touch.
International Team Finds New Method to Isolate Genes

A single strand of plant or animal DNA may contain tens of thousands of genes, each programmed to produce a specific protein essential for the growth or survival of the organism. The challenge for geneticists is to isolate individual genes and determine their function—a painstaking process often requiring years of laboratory trial and error.

Now an international research team has discovered a technique that dramatically streamlines this process for certain kinds of genes. Developed by scientists at Stanford University and Britain’s John Innes Centre, the new procedure could enable scientists to identify specific genes in a matter of months, not years. The technique, known as transcript-based cloning, was described in the Proceedings of the National Academy of Sciences (PNAS).

“We believe that this method represents a significant breakthrough in gene cloning,” wrote the authors of the PNAS study. “The greatest impact of this technology is likely to be on plants with large and complex genomes, including most crop species,” adds Sharon R. Long, the William C. Steere Jr.-Pfizer Inc. Professor in Biological Sciences and the Vernon R. and Lysbeth Warren Anderson Dean of Humanities and Sciences, an authority on bacterial and plant molecular biology. She and her colleagues used the new cloning technique to isolate and identify a gene in the DNA of Medicago truncatula, or barrel medic—a member of the legume family that is closely related to alfalfa, beans, and peas.

“Over the course of six months, we completed what took another group several years to complete, and we identified a pretty cool gene to boot,” says Stanford postdoctoral fellow Raka M. Mitra, lead author of the PNAS study. “We think this technology will be applicable to other species and hope that it increases the pace of biological research on the whole.”

Mitra and her coworkers used their new transcript-based cloning technique to identify a plant gene that plays an important role in the production of usable nitrogen for plants and animals. Using traditional methods, gene cloning in Medicago truncatula can take three to five years.

“I wondered if we could circumvent this laborious hunt for genes,” Mitra says. “I started from the premise that mutated genes produce mutated proteins—and may even prevent the production of the protein entirely.”

Using microarray gene-chip technology, the researchers monitored RNA levels produced by 10,000 genes in both normal and mutant plants. “In the mutant plants, we found one gene, called DMI3, that produced extremely low levels of RNA,” Mitra says. “The normal version of the DMI3 gene produces a protein that is remarkably similar to tobacco plant proteins that are known to modulate their behaviors in response to calcium.”

This finding led the research team to conclude that the DMI3 gene may play an important role in the plant’s response to calcium oscillations. The month before, a Dutch and French research team published similar results in the journal Science. However, that group used traditional gene cloning methods to identify DMI3—a process that took at least four years to complete, compared to six months using transcript-based cloning.

“The bottom line is this,” says Long: “In the process of working on nitrogen fixation, we have discovered a general method for identifying and cloning important plant genes that is fast and may be applicable to almost any plant species.”

Long adds that the new approach to cloning genes may provide a more rapid way to advance understanding of how plants function and how to improve their productivity, which could benefit sustainable agriculture. Long, Mitra, and their colleagues at the John Innes Centre are so confident that transcript-based cloning will have broad applications that they have applied for a patent.

While she is dean of the School of Humanities and Sciences, Sharon Long continues her research. The following provides a glimpse into an exciting discovery from her lab.
Social Sciences Highlights

Social Sciences

How do we learn? How do we organize ourselves into families, communities, organizations, and societies? What are the critical challenges of arms control? What are the economic, political, and social issues surrounding health care? Although the subject matter and specific methods vary widely, the social sciences all aim to apply objective analysis to a broad range of social issues. From a critical study of social, political, and economic events, students gain the tools they need for the analysis of specific issues as well as general cross-cultural perspectives on the human condition. For many students, a social sciences major provides the ideal background for a career in law, business, or government.

Departments in the Social Sciences

Anthropological Sciences
Communication
Cultural and Social Anthropology
Economics
Political Science
Psychology
Sociology

Psychology Professors Receive Honors and Humanities Research

Eleven professors from the Department of Psychology went to Washington, D.C., to present their research as part of the Smithsonian Institution’s “Great Scientists” series. “It’s quite an honor,” says David Platt of the Smithsonian Associates. “We let our two professors who have been Stanford faculty for the last 30 years,” says Psychology Professor Professor Philip Zimbardo presented the “Psychology of Evil and the Policing of Fear” at the event. He said that the director of the National Center on Disaster Preparedness and Terrorism, who is supported by the American Psychological Association for its innovative and creative approach toward training psychodynamicists in combat terrorism and coping with its consequences.

Karen Cook Receives Cooley-Mead Award
Karen F. Cook, the Ray Lyman Wilbur Professor of Social Institutions and organizer of the Social Sciences has been the first-time winner of the 2004 Cooley-Mead Award by the social psychology section of the American Sociological Association for distinguished contributions to the field of social psychology.

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Uncattering San Francisco’s Origins
Barbara Voss, assistant professor at the Department of Cultural and Social Anthropology, organized a five-year project, open to the public, to excavate in the Presidio. Revealing the daily life of the Spanish soldiers and fishermen who discovered the foundations of the first outbuilding ever found outside the colonial settlement, along with evidence of a fire in an adobe house near El Polin Spring and two domestic trash dumps dating from the early 19th to early 20th centuries. Voss said such discoveries are important because they provide clues about how people lived during the Spanish Colonial, Mexican, and early American periods that are not recorded in historical documents.

Sociology

The Psychology of Evil and the Policing of Fear

Mark Lepper, chair of the Department of Psychology and a senior fellow at the Hoover Institution; and Anthony D. Wagner, assistant professor of education and media X will collaborate with a University of California, San Francisco, California.

HKS Professors Elected to the National Academy of Sciences (NAS)
Research shows how to help dyslexic children

Ph.D. students engaged in a study that demonstrates that the brains of dyslexic children can be re-wired—after undergoing intensive remediation training—to function more like the brains of normal readers. The training program helped the participants become better readers after just eight weeks.

Harvard’s Lawrence Bobo and Marycelenia Morgan join Stanford’s Faculty

Stanford University appointed two nationally recognized scholars in the fields of African American studies, Lawrence Bobo and Marycelenia Morgan, to its faculty. Bobo joins Stanford as a professor of sociology and becomes director of the Center for Comparative Studies in Race and Ethnicity (CCSER). His research interests include racial attitudes and relations, social psychology, public opinion, and political behavior. Morgan joins Stanford as an associate professor of communication. The founder and director of the Hip Hop Archive, her research has focused on cultural studies, digital humanities, sociology, discourses, and discourse.

Promising Young Faculty Receive Sloan Fellowships

Stanford Sloan Fellows, awarded by the Alfred P. Sloan Foundation, are intended to cultivate the nation’s best talent to function as future faculty members in specified fields of science. Recent recipients include Kailash Gell-Guest, assistant professor of molecular and cellular biology, who focuses on object recognition as one of the least understood aspects of visual perception; Jonathan D. Lavine, assistant professor of economics, whose research focuses on the organization of firms and markets; and Anthony D. Wagner, assistant professor of psychology, whose research seeks to understand how everyday experiences influence human memory, with an emphasis on the interaction between attention and long-term memory.

Laura Carstensen Named Guggenheim Fellow
Laura L. Carstensen, professor of psychology, was named a Guggenheim Fellow. Carstensen proposes to use her award to fund research for her latest book, which tracks the trajectory of human life expectancy in the 21st century.

Philanthropist and Scholar Makes $6 Million Gift to Stanford

Professor Lawrence Bobo and Marcylenia Morgan join Stanford’s Faculty.

First Stanford Federal Credit Union Professor

First Stanford Federal Credit Union Professor Louise D. Ross, a professor in the Department of Psychology, was appointed as the first holder of the Stanford Federal Credit Union Professorship. The professorship is only the second one in the United States endowed by a credit union at its sponsoring university.

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Laura Carstensen, recent winner of a Guggenheim Fellowship, was among the Stanford-trained psychologist honored by the American Association in Washington, D.C., at part of the "Great Scholars" celebration. She is shown here with History Professor Jack N. Rakove.

Research Shows Way to Help Dyslexic Children

Professor John Gabrieli coauthored a study that demonstrates that the brains of dyslexic children can be re-wired—after undergoing intensive remediation training—to function more like the brains of normal readers. The training program helped the participants become better readers after just eight weeks.
As for her time spent “digging in the dirt,” she says, “It gives a lot of satisfaction to physically be doing something in addition to all your work in the library. Actual fieldwork gives you a connection to the site that you wouldn’t have without getting into the ground, seeing the surroundings, and putting yourself in the mind-set of someone who lived there before you.”

As an undergraduate, Urquhart participated in excavations at precolonial and 18th-century sites in Hillsborough, North Carolina. After graduating, she participated in digs in eastern Crete and in Sicily at the Monte Polizzo dig led by Stanford professor Ian Morris.

“Last year when I was digging, my trenchmates and I dug through the hardest packed clay you can imagine for two straight weeks,” she says. “But we got through it and ended up finding this beautiful 6th-century bowl, largely intact, and furthering our understanding of the building construction once we got to the bottom.”

In addition, Stanford’s Archaeology Center is busy at a site in Peru called Chavin de Huantar. Led by Professor John Rick, Stanford students, including Nikki Slovak, have assisted in excavations gathering archaeological evidence about how one ancient culture developed complex political and social structures.

Slovak, who is originally from Long Island and earned a B.A. in anthropology from the Catholic University of America in Washington, D.C., selected Stanford for her graduate work because of the opportunity to work with Stanford faculty.

Like Urquhart, Slovak enjoys fieldwork because, she says, archaeology is about material culture, and archaeologists find material culture to a large extent in the field.

“It’s an amazing feeling to uncover something that has not seen the light of day for thousands of years,” Slovak says. “The field research opportunities for grads and undergrads are pretty extraordinary, and, as a result, the depth of knowledge and the range of experiences among the archaeology professors and students is quite rich.”

Slovak has a wealth of her own experiences. “I’ve been doing fieldwork for the last six years, mostly in Peru at the archaeological sites of Conchopata and Chavin de Huantar,” she says. “I also have worked in the Mid-Atlantic and the Rockies here in the United States and spent last summer as a graduate intern at the Metropolitan Museum of Art in New York City working with their South American collection.” The latter is in line with her goal of one day being a curator in a museum.

Her professional ambitions have given her “a wonderful opportunity to live and work in places and with people whom I ordinarily would never have had a chance to interact with and learn from.”

Urquhart, who says she has had a great experience in her first year at Stanford, adds, “I’m excited to see what comes next!”

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Lela Urquhart, a Stanford graduate student in Classics and Art and Art History, and Nikki Slovak, a Stanford graduate student in Anthropology, are shown in the Archaeology Students Engage in Fieldwork Around the World article. Photos courtesy of Ian Morris.

Lela Urquhart, from Wake Forest, North Carolina, is the daughter of a farmer. She once told her, “Lela, if you really wanted to make a career out of digging in the dirt, you could just take over the family business.” Instead, after earning a B.A. in Classics from the University of North Carolina at Chapel Hill, Urquhart is pursuing a graduate degree in archaeology at Stanford.

She was drawn to Stanford because the university is “a growing name in archaeology,” she says, “largely due to the faculty it has now, but also, I feel, because it promotes and really believes in this idea that you learn the most from the multidisciplinary approach.”

Students and faculty at the Archaeology Center come from various departments on campus, including Anthropological Sciences, Cultural and Social Anthropology, Classics, and Art and Art History. “The entire archaeology program has developed around an interdisciplinary approach and has attempted to build bridges between various departments on campus,” Urquhart says.
Natural Sciences

From evolutionary processes in ecology to DNA replication, from the evolution of the cosmos to quantum mechanics, from set theory to differential geometry, the study of science and mathematics seeks answers to some of the deepest questions posed by the universe and probes the reasons for our existence on earth. Students who plan to pursue graduate work and careers in science or medicine often choose to major in one of the disciplines in the Natural Sciences cluster. At the same time, in our increasingly technologically oriented society, a strong grounding in the sciences and mathematics is valuable for all students.

Departments in the Natural Sciences

- Applied Physics
- Biological Sciences
- Chemistry
- Mathematics
- Physics
- Statistics
- Hopkins Marine Station
- School of Humanities and Sciences

Two Faculties Elected to AAAS

Two newly elected members to the American Association for the Advancement of Science in October 2004. The Lokey Lab is the most research-intensive building on campus.

Lorry I. Lokey Lab Opens

Stanford President John Hennessy and Chairman of the Board Barry W. Swenson Jr. join in the dedication ceremony for the Lorry I. Lokey Laboratory for Chemistry and Biophysical Sciences.

Election of Lois Harwell and Mildred Finley Wohlford to AAAS

Election to the National Academy of Sciences (NAS) is one of the highest honors that can be accorded a U.S. scientist or engineer. Newly elected members from Stanford include Takao Ishibashi, professor of physics, and Paul A. Wender, the Francis W. Benjamin Professor of Chemistry. Established by a congressional act in 1863, the NAS is a private organization of scientists and engineers.

Two Scientists Elected to National Academy of Sciences (NAS)

Two faculty members, an associate professor of biology and a professor of statistics and cognizant dean for the Natural Sciences at H&S, were elected to the National Academy of Sciences.

Research Examines Global Climate Change

For the first time, scientists have found a direct relationship between global warming and the evolution of contemporary wildlife, according to a research team led by Stanford biologist Elizabeth A. Hadly. In separate research, Stanford’s Jaeger Ridge Global Change Project, a multiregional experiment that simulates environmental conditions that could exist a century from now, found that grandstand ecosystems could become wetter as a result of global warming.

New Math Professor Provides Leadership in Probability and Analysis

The research of Horng-Tzer Yau, appointed professor of mathematics in 2003, has focused on probability, statistical physics, and quantum mechanics. “I am delighted with the successful appointment of H.-T. Yau,” says Richard M. Schoen, chair of the Department of Mathematics. “It brings a real star to the mathematics department, and firmly establishes us as a leading department in probability and analysis.”

Biologist Helps to Establish Research Center on Israel-Jordan Border

Marcus W. Feldman, the Burton C. and Mildred Finley Weinfield Professor in the School of Humanities and Sciences, chaired the academic planning committee for a pioneering environmental research center operated in collaboration with Stanford, Cornell, University, and universities in Israel and Jordan. The Bridging the Rift Center will be built so that half the facility is in Israel and half is in Jordan. Students from Jordan and Israel will be admitted to Stanford or Cornell for two years, then return to the center to conduct laboratory and field research.

Ravi Vakil Wins Presidential Award

Ravi Vakil, assistant professor of mathematics, was named one of the nation’s most promising young scientists and engineers honored with the Presidential Early Career Award for Scientists and Engineers (PECASE) in 2004. The award was presented by the science advisor to President Bush in a White House ceremony.

Eliashberg, professor of mathematics, and Marcus W. Feldman, the Burdsell Professor of Marine Sciences, were elected to the American Academy of Arts and Sciences. Professor Barbara Block, the J. G. Jackson and C. J. Wood Professor of Marine Biology, recently joined Stanford as a professor of statistics and cognizant dean for the Natural Sciences.

Ant Expert

Professor Barbara Block does pioneering research using electronic tags to study large migratory fish. Together with her colleagues, she has charted the movements of tuna, sharks, and billfishes in the Atlantic and Pacific oceans.

"Blaize" Illuminates Era When Stars and Galaxies Formed

Astrophysicists at Stanford report spotting a black hole so massive that it is more than 15 billion times the mass of our sun. It is so far away that the scientists think it formed when the universe first began, so it may provide a window into our cosmological origins. The scientists are collaborating at the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC) at Stanford, which celebrated the groundbreaking for the Fast Karlin Building in 2004.

New Cognizant Dean for the Natural Sciences Appointed

In 2003, H&S Dean Sharon Long named Iain M. Johnstone, professor of statistics and director of the Department of Statistics and Department of Health Research and Policy, as cognizant dean for the Natural Sciences.

Two members of the H&S natural sciences faculty were named Bass University Fellows in Undergraduate Education for their commitment to undergraduate education. They are Russell D. Fernald, professor of biological sciences and the Benjamin Scott Groeder Professor of Human Biology, and Robert D. Semen, professor and chair of the Department of Biological Sciences.

Ant Expert’s Research Inspires Engineer

Stanford biologist Deborah Gordon studies ant colonies because they are excellent “systems biology” laboratories, environments where complex and unexpected behavior emerges from the interaction of simple rules. Her 20-year field study of red harvester ants in the southern Arizona desert provides inspiration for biological networks that have stimulated engineers in fields such as tele-communications, computer networking, artificial intelligence, and robotics—areas in which complex systems are built upon patterns of interactions between small components.

Gravity Probe B Launches

The Gravity Probe B (GP-B) experiment launched on April 20, 2004. A collaboration of Stanford, NASA, and Los Alamos, the experiment will provide the most accurate test to date of Einstein’s General Theory of Relativity. With the world’s most perfect gyroscopes, designed to measure angles so small they correspond to the width of a human hair seen from a quarter of a mile away, the experiment promises to expand our knowledge in areas such as black holes and warped space-time.

Two Scientists Elected to AAAS

Two newly elected members to the American Academy of Arts and Sciences are Gertchen Daily, associate professor of biological sciences, and, elected to the American Academy of Arts and Sciences, was elected to the National Academy of Sciences (NAS). John Brauman (left), the J.G. Jackson and C.J. Wood Professor of Chemistry, receives the National Medal of Science from President George W. Bush in 2003.

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NATURAL SCIENCES HIGHLIGHTS

Hopkins Designated “Milestones in Microbiology” Site

The American Society for Microbiology designated Hopkins Marine Station as a “Milestones in Microbiology” site. Photo: L.A. Cicero/Stanford News Service.

HKS and Bio-X

HKS is one of four schools at Stanford participating in Bio-X, an innovative initiative designed to foster interdisciplinary research in the biosciences by bridging the worlds of biology, medicine, engineering, and physical sciences. Mark Schmitz, an assistant professor of biological sciences and of applied physics, is one of a number of HKS professors appointed to the Bio-X faculty. Schmitz was named among the 100 top young innovators by MIT’s Technology Review magazine for crafting the world’s smallest endoscope to elucidate the workings of individual brain cells.

Three H&S Scientists Join the Ranks of Noted Science Fellows

Among the newly elected fellows of the American Association for the Advancement of Science are Stanford professors James P. Collins, the George A. and Hilda M. Daubert Professor of Chemistry; Russell E.D. Fernald, the Benjamin Scott Crocker Professor of Biological Sciences in the Department of Biological Sciences; and (2003) Ian R. Fisher, assistant professor of applied physics. The three were among the 100 total young innovators by MIT’s Technology Review magazine for crafting the world’s smallest endoscope to elucidate the workings of individual brain cells.

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W.E. Moerner, the Lorry I. Lokey/Business Wire Professor in the School of Humanities and Sciences, among the 100 top young innovators by MIT’s Technology Review magazine for crafting the world’s smallest endoscope to elucidate the workings of individual brain cells.

Promising Young Faculty Receive Sloan Research Fellowships

Sloan Research Fellowships, awarded by the Alfred P. Sloan Foundation, are intended to enhance the careers of the very best young faculty members in specified fields of sciences. Recent recipients include (2004) Justin Du Bois, assistant professor of chemistry, and Kang Shen, assistant professor of biological sciences. (2003) Ian B. Fisher, assistant professor of applied physics; (2003) Dieudonne Kamen, assistant professor of electrical engineering; and (2003) Mark Schmitz, assistant professor of biological sciences and of applied physics, are one of a number of HKS professors appointed to the Bio-X faculty. Schmitz was named among the 100 top young innovators by MIT’s Technology Review magazine for crafting the world’s smallest endoscope to elucidate the workings of individual brain cells.

Campbell Receives Science Award

Allan M. Campbell, the Barbara Kimball Browning Professor in the School of Humanities and Sciences at Stanford University, received the 2004 Albott-AIM Lifetime Achievement Award from the American Association for Microbiology. "Lenny" Campbell, as he is known to his colleagues, cited his “exceptional insights and achievements in the field of molecular genetics—a career of groundbreaking research that has had a profound influence on several fields, including molecular cloning and gene therapy.”

Physics Professor Receives Gruber Foundation Prize

Andrei Linde, professor of physics, was selected as co-recipient of the 2004 Cosmology Prize of the Peter Gruber Foundation for his work in developing and refining the theory of cosmic inflation.

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**Natural Sciences: Research Profile**

**New Kavli Institute Probes Universe**

With extraordinary developments at the interface of astronomy and physics, Stanford University has set out to become the preeminent international research center for astrophysics and cosmology. Thanks to a $7.5 million grant from Stanford to the Kavli Foundation, the university is a giant step closer to its goal with the inauguration of the Kavli Institute for Particle Astrophysics and Cosmology.

“The research made possible by the gift of Fred Kavli will put Stanford on the frontiers of inquiry in this fascinating area of science,” says Stanford University President John Hennessy.

The institute will foster collaboration between faculty from Stanford’s Departments of Physics and Applied Physics, Institute for Theoretical Physics, and Stanford Linear Accelerator Center (SLAC). Douglas Osheroff, chair of Stanford’s Department of Physics and a Nobel laureate, sees the institute as a key step in continuing Stanford’s tradition of groundbreaking research.

“This is the most exciting thing that has happened to physics at Stanford in the past 15 years, and that includes four Nobel Prizes in a row,” Osheroff says. “This new institute will serve as a catalyst, focusing both new and existing expertise at SLAC and on campus to work on some of the most challenging questions of our time. In addition, we could not have attracted two better scientists to lead in this effort.”

**Top Leadership for the New Institute**

Roger Blandford is the new director of the institute and the first holder of the Pehong and Adelle Chen Chair of Particle Astrophysics and Cosmology. Blandford earned his doctorate at Cambridge and for more than 25 years was a professor at Caltech. Steven Kahn, the institute’s deputy director, recently made the cross-country move from Columbia University to Stanford.

Gradual lensing of a cluster of galaxies as captured by the Hubble Space Telescope. The lensed galaxies are stretched across the cluster’s center and some of them are multiple imaged. Credits: ESA, NASA, J.P. Kneib (Observatoire Midi-Pyrénées) and R. Ellis (Caltech).

Within a year, both professors plan to integrate undergraduate students into their research. “Working here at the Kavli Institute will give students a first-hand look at how a project is born,” notes Kahn, as he points to several telescope design plans for the Large-aperture Synoptic Telescope (LSST). Kahn is the lead scientist for the telescope’s camera. “Often, students are introduced to the very mature stages of a project. Therefore, they don’t have a good concept of why it was built that way.”

**What Next?**

Even in its infancy, the Kavli Institute is tackling major problems in cosmology, high-energy astrophysics, and theoretical physics, but the promise of unprecedented discoveries lies ahead.

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**Cosmic Questions**

**How is a glacier into the kinds of questions the Kavli Institute seeks to answer?**

**What is the universe accelerating?**

“Our colleagues in the Stanford Institute for Theoretical Physics have become very engaged in the twin challenges of explaining how the universe was set up just after the Big Bang and why it now appears to be accelerating,” says Kahn. "Astronomers have known about the universe’s expansion for a century, but only recently found that it is not slowing down, as once assumed, but is getting faster."

This cosmic acceleration is one of the many enigmas cosmologists at the Kavli Institute hope to address by simultaneously studying cosmology, particle physics, and string theory. "Currently, the work is speculative," says Kahn, "but it could address some fundamental problems in cosmology."

**What can neutron stars tell us?**

Stars in their death throes can produce supernova explosions and leave behind neutron stars—stellar cores so massive that a contact lens full of neutron star mass would weigh 10 million tons on the Earth’s surface. These massive stars generate a huge magnetic field and rotate hundreds of times per second. Because they pulsate like clockwork, scientists refer to them as pulsars. Dr. Anatoly Spitkovsky, a member of the Kavli Institute at Stanford, and his colleagues are studying a new system in which two pulsars orbit each other. "Systems like this can be used to test Einstein’s General Theory of Relativity and how relativistic particles behave under these extreme conditions," says Spitkovsky.

Roger Blandford, the Pehong and Adelle Chen Chair of Particle Astrophysics and Cosmology at Stanford University, notes that "Professor Kahn and I understood this and knew that there was an opportunity at Stanford to draw together the creativity and expertise on campus and at SLAC to start something special."

Indeed, physics at the smallest scales, as studied at particle physics accelerators, and at the largest scales, as studied using the universe as a laboratory, share a common goal: to understand how the forces of the universe interact. Waiting to be explored are questions that could radically change our understanding of the universe: What powered the Big Bang? What is the role of dark matter in binding the universe together? What are the dynamics of black holes? Are there hidden space-time dimensions?

**Graduate Students Vital in Research**

In addition to collaborating with colleagues to answer questions about the universe, Blandford and Kahn value working with graduate students.

“Graduate students are vital to my research because they do a lot of the work and contribute many of the fresh ideas,” says Blandford. First-year graduate students conduct research within a different branch of the physics department each quarter, which exposes them to a medley of physics disciplines.

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**Kavli Institute for Particle Astrophysics and Cosmology**

Working here at the Kavli Institute will give students a first-hand look at how a project is born.”
Humanities

The humanities encompass the study of the history, ideas, and expressions of human existence. The disciplines of the humanities focus on issues that have fascinated and perplexed people throughout history and across cultures, as well as the way these issues are manifested through language, music, art, and literature. Study in these disciplines provides students with the essential tools of writing, analysis, and argument, which build a solid foundation for careers in areas as varied as medicine, business, law, teaching, research, and the performing arts.

Departments in the Humanities

Art and Art History

Classics

Drama

English

History

Linguistics

Music

Philosophy

Religious Studies

Division of Literatures, Cultures, and Languages

Asian Languages

– Comparative Literature

– French and Italian

– German Studies

– Slavic Languages and Literatures

– Spanish and Portuguese

Rhodes and Marshall Scholars

History major Jared Cohen, who also earned a bachelor’s degree in political science and a minor in African studies, was awarded a Rhodes Scholarship to study at Oxford University. Mirela Nichole, who received a bachelor’s degree in 2004 in classics and a master’s degree in interdiscipinary studies in humanities with an emphasis on ancient art and inclusivity, was one of five Stanford students selected as a Marshall scholar. Marshall Scholarships allow students to obtain a degree at any university in the United Kingdom.

Sociological Look at Computer Games

Research in a Stanford Humanities Laboratory project suggests that computer game simulations are the emerging narrative form and communication medium of the early 21st century. A seven-city, seven-exhibit exhibition, “Fictional Worlds, Virtual Experiences: Storytelling and Computer Games,” traced the history of computer and video games through a collection of artifacts assembled by Henry Lowood, a curator at Stanford University Libraries.

Institute for Research on Women and Gender (BWG) Welcomes New Director

Londa Schiebinger, the Edwin E. Sparks Professor of the History of Science at Pennsylvania State University, was named the Barbara D. Finberg Director of the Institute for Research on Women and Gender and professor of history at Stanford. She was the first woman historian to win the Alexander von Humboldt Research Prize and was co-founder and codirector of Science, Medicine, and Technology in Culture, Inter-College Program, and founder of the Gender History Workshop, both at Penn State.

National Book Critics Award Nominations

Books by two Stanford English professors were finalists for one of the country’s most prestigious literary prizes. Old School, by Tobias Wolff, was nominated in the fiction category, and Lucia Joyce: To Dance in the Wake, by Carol Loeb Shloss, was nominated in the category of biography and autobiography.

2003 Nobel Laureate Is Visiting Writer

John M. Coates was awarded the 2003 Nobel Prize in Literature. He has taught at Stanford twice, most recently in 2004 in the creative writing and directing of fine arts class. Coates delivered the Spring Commencement address.

Humanities Professor Joins the AAS

Four members of the H&S faculty were elected fellows of the American Association for the Advancement of Science, including Eve V. Clark, professor of linguistics; Joan Breau, the Sadie Dernham Panke Professor of Humanities and professor of linguistics; was among seven Stanford scholars elected to the American Academy of Arts and Sciences.

King Papers Project Commemoration

History Professor Clayborne Carson, director and curator of the Martin Luther King, Jr. Papers Project, hosted a reception for the public to commemorate King’s 75th birthday. Nearly 100 rare documents related to King’s life and work were on display.

Professor Dupuy Joins Group Advising French Government on Technology

Professor Jean-Pierre Dupuy was elected to the French Academy of Technology. Dupuy is a professor of social and political philosophy at the École Polytechnique, Paris. At Stanford, he is a researcher at the Center for Study of Language and Information (CSLI) and a professor, by courtesy, of political science.

Stanford Program in Islamic Studies

Stanford received $9 million to endow a new program and professorship in Islamic Studies to help increase knowledge of the Muslim world. Shokih Abla, a former Oracle Corp. executive, and his wife, Sara, made a $2.5 million gift to endow the program. Elysée Warren, ’34, a member of Stanford’s H&S Council, established a new professorship in Islamic Studies with a $2 million gift. Both gifts of endowment received a one-to-one match from the William and Flora Hewlett Foundation.

France-Stanford Center Inaugurated

Jean-David Lavrinate, French ambassador to the United States, spoke at the inauguration of the France-Stanford Center for Interdisciplinary Studies. At the event, Sharon Long, dean of Humanities and Sciences, announced that gifts of endowment to the new center will recibe double the amount in matching funds. The match is available through the $1 million endowment gift from the French Ministry of Foreign Affairs and the endowment gift from the William and Flora Hewlett Foundation.

Professor Arnold Rampersad was named dean for the humanities.


Jean-David Lavrinate, left, talks with Elizabeth Rennard, who was named a Bass University Fellow in Undergraduate Education for her commitment to undergraduate students. Photo: L. A. Cour/ Stanford News Service.

Entire MIA Class Receives Murphy and Cadogan Fellowships

Stanford University’s entire first-year Master of Fine Arts class were awarded Murphy and Cadogan Fellowships in 2004. “We’ve always done quite well with this award, but never have we had a hunderd!” says Joel Ziv, department chair for the Department of Art.

This really speaks to the excellence of the work of each of our MIA people, and to their collective energy and interchage.

Murphy and Cadogan Fellowships were awarded to H&S graduate students this year, from left: Scott Heacker, Catherine P. Harris, Arnold Kemp, Scott Ross. (photo:Deadline, Amy Hicks). The fellowships are sponsored by the San Francisco Foundation to assist Bay Area fine arts graduate students. Photo: Paul DeMarinis.

11th Annual Humanities Center Book Celebration Honors Scholarly Output

Eighty-eight books, eight CDs and three DVDs were published during the 2003-04 academic year. Eighty-eight books, eight CDs and three DVDs were published during the 2003-04 academic year. Eighty-eight books, eight CDs and three DVDs were published during the 2003-04 academic year. Eighty-eight books, eight CDs and three DVDs were published during the 2003-04 academic year.

Humanities Highlights
Humanities: Faculty Profile

Philosophy Talk Tackles the Big Questions

The New York Times calls them “two wisecracking Stanford professors,” whose radio program, Philosophy Talk, is modeled after National Public Radio’s Car Talk. Kenneth Taylor, chair of Stanford’s Department of Philosophy, and John Perry, the Henry Waldgrave Stuart Professor of Philosophy are Stanford’s answer to Car Talk’s humorous and entertaining “Click and Clack.” But instead of diagnosing car problems, they engage listeners and expert guests in examining the philosophical issues of the day.

Analyzing concepts, such as terrorism, and considering how they are being applied and to what end can lead to clarifying insights, Taylor says. “You can sometimes not be taken in by the rhetoric of politicians, for example, or the rhetoric of the church, or the rhetoric of your friends. It makes you more aware of what’s coming at you.”

At a time when there is a lot coming at the average person and seemingly less time to think about it all, Taylor and Perry seek to counter the trend by encouraging more “philosopher citizens” to “enliven democracy.”

“I actually think philosophy is vital for our public discourse,” Taylor says. “I think public discourse in this country is mostly debased. People shout at each other, ad hominem. They don’t really listen and argue back. Philosophy really is the art of doing that—of listening, challenging—in a way that takes seriously what the other person actually says.”

To help interject philosophy in public discourse, Taylor and Perry created pilot programs, one on lying and the other on terrorism, that aired in August 2003.

By January 2004, Philosophy Talk was launched on San Francisco’s KALW 91.7 FM, airing every Tuesday at noon, with support from the Greenwall Foundation, the Hoover Institution, and Stanford University.

“Volunteers have been critical to our program,” Taylor notes, “like Olga Kramar (B.S. ’81), who created our Web site, and four graduate students who put together research packets each week so we sound like we know everything about everything and have thought about these topics for years.”

Philosophy Talk’s topics have included genetic engineering and cloning, marriage and the state, defining race, Bush’s doctrine of preemptive self-defense, and science and religion. When asked whether the philosophical issues today are the same as in years past, Perry quickly notes the differences.

“I think the opportunities to change the parameters for human life through biology are going to be a factor in this century that were not a factor before. And, of course, the opportunity to destroy life through ecological or nuclear catastrophe is probably more present than it ever has been.” He adds with comedic timing, “Now, that’s the good news.”

Taylor adds that Perry’s reference to biology and genetics raises questions about what limits should be placed on the sciences and what kind of new social structures are needed and how they impact family life, among other things. “Scientists are not going to think through those issues for us,” he says. “It is the humanists, and chief among them, we’d like to think, the philosophers.”

Philosophy Talk isn’t the only way Stanford is encouraging a more informed public. Ed Zalta, the director of Stanford’s Center for the Study of Language and Information (CSLI) and of the Metaphysics Research Lab, took an idea Perry had for a philosophy dictionary and transformed it into a dynamic reference work.

Stanford’s Encyclopedia of Philosophy offers more than 500 entries online, ranging from Plato’s academy to Zeno’s paradoxes. Unlike printed encyclopedias of philosophy, which have been known to have a 30-year gap between printings, Stanford’s encyclopedia is constantly being updated by 91 subject editors overseeing more than 825 authors.

Support for projects such as these is what Perry values about Stanford, but the most important thing, he says, is the quality of the students. Taylor agrees and adds that he has been many places, from small liberal arts colleges to big research universities, but he finds that Stanford is great at all levels—students, teaching, and research. “Stanford has everything,” Taylor concludes.

And he may be right. Stanford certainly has one thing other universities don’t have: a radio program with two “wise-cracking” philosophers on a mission to reassert philosophy’s place in the big issues of the day.

Listen to previously recorded programs and learn more about the program on Philosophy Talk’s Web site:
http://www.philosophytalk.org

Stanford’s Encyclopedia of Philosophy
Use this dynamic reference work to learn more about philosophy:
http://plato.stanford.edu

“Scientists are not going to think through those issues for us. It is the humanists, and chief among them, we’d like to think, the philosophers.”
The Humanities and Sciences Council is the school’s outside advisory group that serves as a “cabinet” for the academic deans. The council brings expertise and interests applicable to the school’s initiatives in such areas as undergraduate education, strategic planning, financial management, and development priorities. We are grateful to past council members and to current H&S Council members listed below.

Anne T. Bass
President, Anne T. and Robert M. Bass Foundation
C. Diane Christensen
President, The Christensen Fund
Roger A. Clay, Jr.
President, National Economic Development and Law Center
Roberta Denning
Member, Board of Trustees of the Greenwich Library and the Performing Arts Center Foundation in New York
John D. Dickman
Founder and managing partner, SAM Ventures; cofounder, Bay City Capital
Susan Ford Dorsey
President, Sand Hill Foundation; cofounder, Center for a New Generation
Barbara D. Fudenberg
Vice president, MEM Associates
Sakurako D. Fisher
Trustee, San Francisco Symphony, Exploratorium, American Hospital of Paris, Alliance Francaise, and ODC/ San Francisco Dance Company
R. Patrick Forster
Private investor
Robert D. Haas
Chairman of the board, Levi Strauss & Co.
William A. Halter, Jr.
Management consultant; member, Board of Trustees of Stanford University
Walter B. Hewlett
Chairman, William and Flora Hewlett Foundation; member, Board of Trustees of Stanford University; director, Stanford’s Center for Computer-Assisted Research in the Humanities
Leslie P. Hume
Member, Board of Trustees of Stanford University; chair, Board of Directors of the San Francisco Foundation
Claudia Huntington
Senior vice president, Capital Research Company
Peter M. Joost
President, Joost Enterprises Corporation
Sarah Ketterer
Chief executive officer and cofounder, Causeway Capital Management
Daniel E. Koshland, Jr.
Professor of the Graduate School Department of Molecular and Cell Biology, University of California, Berkeley
Arun Kumar
Managing director, Qbera Ventures, LLC
Joan F. Lane
Special assistant to the Board of Trustees of Stanford University
Lorry I. Lokey
Founder, chairman, and chief executive officer, Business Wire
Dailey Pattee
Psychotherapist; former member, Board of Trustees of the Juilliard School
Gordon B. Pattee
President, MAP Capital Corporation
Marshall Payne
Managing partner, CIC Partners, LP
Isaac Stein
Former chairman, Board of Trustees of Stanford University; president, Waverley Associates
Lysbeth Warren
Alumna, Stanford University School of Humanities and Sciences
Ralph R. Willard
President and cofounder, Bain, Willard Companies, LP

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**Facts and Financials**

The School of Humanities and Sciences (H&S) is Stanford University’s largest school and the primary locus for its superior liberal arts education. Awarding nearly 80 percent of undergraduate degrees and more than 40 percent of doctoral degrees, H&S has more than 500 faculty members with appointments in one or more of the school’s 28 departments. H&S has great success promoting interdisciplinary teaching and research programs, offering 20 degree-granting interdepartmental programs (IDPs) and more than 20 non-degree-granting programs.

Endowment income represents 20 percent of the school’s funding, providing—a reliable income stream for the school, as the interest earned on the endowed gift, not the principal, is used to support the school’s faculty, students, and programs. Thanks in part to payments from the $300 million gift from the William and Flora Hewlett Foundation and gifts receiving the one-to-one or one-to-two Hewlett match, H&S raised nearly $200 million in new endowment between 2001 and 2004, greatly enhancing the school’s financial position for the future.

H&S is seeking to raise an additional $400 million in core endowment over the next five years to support areas such as professorships, faculty scholars, and graduate fellowships, and to create funds for innovation, new initiatives, and faculty recruitment.

The School of Humanities and Sciences has more than 500 faculty of distinction. Many H&S faculty are nationally and internationally renowned, including Nobel laureates, Pulitzer Prize winners, MacArthur Fellows, and hundreds of members of the national scholarly academies.

**H&S Faculty Numbers of Faculty in Each Rank and by Academic Cluster September 2004**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Humanities</th>
<th>Social Sciences</th>
<th>Earth Sciences</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistant Professor</td>
<td>144</td>
<td>118</td>
<td>16</td>
<td>278</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>56</td>
<td>48</td>
<td>13</td>
<td>117</td>
</tr>
<tr>
<td>Full Professor</td>
<td>66</td>
<td>58</td>
<td>14</td>
<td>138</td>
</tr>
<tr>
<td>Total</td>
<td>266</td>
<td>224</td>
<td>43</td>
<td>533</td>
</tr>
</tbody>
</table>

**Majors Granting Highest Number of Undergraduate Degrees in 2003-04**

At Stanford, eight out of the ten majors granting the highest number of undergraduate degrees in 2003-04 were in the School of Humanities and Sciences. H&S majors are highlighted in red:

1. Economics
2. Human Biology
3. Biological Sciences
4. Computer Science
5. Psychology
6. Political Science
7. International Relations
8. English
9. History
10. Management, Science, and Engineering

H&S is home to Stanford’s undergraduate education, awarding 1,438 bachelor’s degrees in 2003-04, which represents nearly 80 percent of the undergraduate degrees awarded at Stanford.

**2004-05 H&S Enrolled Undergraduate Students**

Total: 2,624

**Undergraduate Students**

**Graduate Students**

Graduate education is thriving in the School of Humanities and Sciences. In 2003, H&S conferred 616 graduate degrees, including 232 doctoral degrees. H&S graduate students work with and learn from some of the finest faculty in the world and benefit from a pedagogy that involves graduate students in both teaching and research.

**2004-05 H&S Enrolled Graduate Students**

Total: 2,137

**Financials**

H&S benefits from the generous support of alumni and friends, with endowment gifts providing 20 percent of the school’s budget. The largest sources of funding for H&S are from university funds, at 50 percent, and grants and contracts, at 26 percent. The top three expenditures for H&S are teaching and research salaries, equipment and supplies, and graduate aid.
“The Hewlett Challenge has created a partnership with donors to ensure the brightest future possible—not just for H&S but also for Stanford and each of its students. We are deeply grateful to our alumni, parents, and friends who are helping to ensure a strong liberal arts core at Stanford.”

Stanford’s School of Humanities and Sciences breaks $100 million mark in Hewlett Challenge

The School of Humanities and Sciences (H&S) at Stanford announced in 2004 that it surpassed $100 million in new gifts and pledges in the Hewlett Challenge, giving a substantial boost to Stanford’s largest school and to the heart of Stanford’s undergraduate education.

Having raised $100,529,895 in new gifts and pledges, the school received Hewlett Challenge matching funds of $98.9 million, bringing the total to nearly $200 million in new endowment for the core of Stanford University.

“This is a truly important milestone,” says Sharon R. Long, the Vernon R. and Lysbeth Warren Anderson Dean of Humanities and Sciences. “We could not be happier or more grateful to the Hewlett Foundation and to our many generous donors for making such a significant, long-term investment in Stanford and the School of Humanities and Sciences.”

The leaders of the William and Flora Hewlett Foundation created the Hewlett Challenge with a gift to H&S of $300 million and an additional gift of $100 million to Stanford University’s Campaign for Undergraduate Education on May 2, 2001. The extraordinary gift to H&S, which has been called the Hewlett Challenge, was designed to bolster the school’s endowment for future generations of scholars and students and to strengthen key areas in the school. Three years later the challenge is well on its way to achieving its goal.

The $100 million in new gifts and pledges is earmarked to support dozens of professorships, directorships, graduate fellowships, and new or existing academic programs. Existing areas benefiting from the Hewlett Challenge include the Overseas Studies Program, the Institute for Research on Women and Gender, and the Archaeology Program.

Among the new programs created with Hewlett Challenge matching funds are the Center for Interdisciplinary Studies in Science and Technology and the International, Comparative and Area Studies Division, which includes the new Sohaib and Sara Abbas Program in Islamic Studies, other area studies, and the France-Stanford Center for Interdisciplinary Studies. In addition, some unrestricted gifts of endowment have been matched, offering flexibility to the school and its leadership to direct the funds where they are needed most.

“This gift was made in the spirit of my father’s approach to philanthropy,” says Walter Hewlett, chairman of the board of the Hewlett Foundation and the son of William R. Hewlett, ’34, who died in 2001. “He used his wealth to help others solve problems, and the H&S gift was designed with that approach in mind. We are pleased to be able to provide financial leverage to the School of Humanities and Sciences to achieve long-term financial stability, and we hope that the Hewlett gift will strengthen the school for many years to come.”

While the $100 million mark is an important threshold to cross, it is only the first step, according to Long. By 2009, H&S seeks to double the Hewlett gift, to $600 million, by continuing to build core endowment support for areas such as professorships, faculty scholars, graduate fellowships, and strategically identified program areas. Further endowed support could help to create funds for innovation and faculty recruitment, and launch new efforts, such as an arts initiative and a program for postdoctoral fellows in the physical and mathematical sciences.

“The Hewlett Challenge has been tremendously effective in attracting support for H&S and furthering the reach of gifts from H&S donors,” says Eugene Van Wyzien, associate dean of external relations for the School of Humanities and Sciences.

“With either one-to-one or one-to-two matching funds awarded to gifts of endowment to H&S, the Hewlett Challenge has created a partnership with donors to ensure the brightest future possible—not just for H&S but also for Stanford and each of its students. We are deeply grateful to our alumni, parents, and friends who are helping to ensure a strong liberal arts core at Stanford.”

The progress in raising endowment support for H&S brings the school closer to fulfilling another important aspect of the Hewlett Challenge, which is to honor the memory of William Hewlett, co-founder of the Hewlett-Packard Company.

“This gift honors my father,” said Walter Hewlett at the announcement of the foundation’s gift to Stanford and H&S in 2001. “It honors his lifetime of philanthropy, his lifelong devotion to Stanford, and his passionate belief in the value of a liberal arts education. By helping Stanford fulfill its promise—namely, increasing knowledge and helping young people—we honor his wishes.”
