



## Section 2

# Academic Initiatives and Plans

**T**his section focuses on the programmatic elements of the budget plan, describing the principal planning issues in the academic areas of the university.

### GRADUATE SCHOOL OF BUSINESS

The Graduate School of Business (GSB) will remain under a high degree of competitive and financial pressure in 2004/05. Competition to attract the best people to the GSB, particularly faculty and students, remains very high. While the school has made some difficult decisions to contain costs over the last year, the GSB will continue to invest in the key elements of its program: recruiting and retaining faculty, supporting research centers, and supporting key services for students and alumni.

#### Research Centers

The mission of the GSB is to create ideas that advance and deepen the understanding of management, and, with these ideas, develop innovative, principled, and insightful leaders who change the world. At the GSB, there are four critical components to a complete general management education: leadership, entrepreneurship, global awareness, and social accountability. Leadership means taking full responsibility for changing an organization for the better. To develop this skill, students must understand their own strengths and weaknesses, and learn how to motivate and inspire others. Entrepreneurship can mean starting a business; it also means acting with the perspective of an owner of a business, whether you are managing it, advising it, or investing in it. Global awareness means knowing what it takes to be a world-class organization, and how to build one that spans multiple countries, cultures, and economic or political systems. Finally, social accountability means being aware that businesses are not only economic institutions, but also social institutions with responsibilities that extend beyond financial consider-

ations. To be profitable in the long term, businesses and their leaders must continue to earn the trust and confidence of society.

It is around these four critical components of general management that the school continues to invest in its research centers: the Center for Leadership Development and Research, the Center for Global Business and the Economy, the Center for Social Innovation, and the Center for Entrepreneurial Studies. Each center provides a focal point for teaching, research and community engagement in a particular area of faculty interest. GSB faculty find these centers helpful in terms of funding research, developing new cases and courses, collaborating with Stanford faculty outside of the GSB, and involving the communities who are interested in the work of these centers.

The school is currently raising funds for two new centers.

- 2003/04 was the pilot year for the Center for Leadership Development and Research (CLDR) and plans are underway to expand certain programs over the next two years. The center offers structured leadership development opportunities that improve student self-awareness and provide the skills students need to continue growing and adapting throughout their careers. Other activities include research and topical programming to bring together scholars, practitioners, and students to examine leadership issues.
- In May 2004, the school will launch the Center for Global Business and the Economy (CGBE) with an inaugural conference, Global Business and Global Poverty. The center encourages partnerships between the school and global managers, and supports research, teaching, and course development on issues related to global business and the economy.

In addition, the school's other centers continue to be productive and enjoy success.

- The Center for Social Innovation (CSI) secured initial funding from foundations and alumni and has expanded activities in the past year. The center is both cross-disciplinary and cross-school. Recent activities include the Executive Programs for Nonprofit Leaders; the launch of the school's first journal, the Stanford Social Innovation Review, which has exceeded subscription expectations and is virtually the only publication in its field; the Stanford Project on Emerging Nonprofits; and the Stanford Educational Leadership Initiative, which is a joint program between the GSB and the School of Education. The Public Management Program (PMP), which fosters courses and student programs, supports the entire curriculum with courses related to social responsibility. Nearly a quarter of the graduating class last year chose to earn enough credits in this area to qualify for the PMP certificate, up significantly from just five years ago. The Stanford Management Internship Fund, which supports MBAs who work with nonprofit organizations during their summer internships, and the Alumni Consulting Teams, which provide pro bono advice to nonprofit organizations, are also under CSI's umbrella.
- The Center for Entrepreneurial Studies (CES) continues to support student programs and internships, faculty teaching, case development and alumni outreach, and to host a well-attended annual conference.

In addition to teaching and research, other programmatic priorities for the upcoming academic year include student services, alumni services, executive education, and continued partnerships with the university.

- **Student Services** – The school continues to offer new programs, courses, and services for students. The demand for career services remains very high. Within the MBA program, the Center for Leadership Development and Research will offer more experiential learning to MBA students through its co-curricular Leadership Development Platform in the next academic year.
- **Alumni Services** – The GSB is offering more to alumni than ever before. In addition to the very popular reunions and conferences the school has

held for many years, there are new opportunities for alumni to engage with the GSB. Through a new service called Lifelong Learning, the school is creating opportunities for its alumni to tap the school's knowledge base throughout their lives. These initiatives have been extended to locations around the country and around the world.

- **Executive Education** – In June 2004, Executive Education will launch the Stanford Summer Institute, an intensive four-week business program for liberal arts and sciences undergraduates. In addition, new custom programs are being developed for existing and new clients. Finally, the school will continue efforts to develop CD-ROM-based takeaway course modules and educational materials that reflect the interests of its faculty. Efforts to develop and market these types of products jointly with the Harvard Business School have enjoyed some success and will continue.
- **Collaboration with University** – Finally, the GSB continues to collaborate and develop new initiatives with other schools and faculty at the university. Some recent examples include GSB centers that are funding research conducted by GSB and other university faculty, a new joint degree program with the School of Education; new courses taught to a diverse group of university students in topics such as entrepreneurship, engineering and biomedical devices; and some new courses cross-listed with other schools.

### SCHOOL OF EARTH SCIENCES

The School of Earth Sciences is in the middle of a strategic planning process, which will culminate in a vision of the school over the next five to ten years, along with an implementation plan. This plan will likely include shifts in its core disciplines, graduate and undergraduate offerings, and growth of new research centers and scientific facilities.

Goals emerging from the strategic plan include:

- Expand the understanding of the Earth and its history, environmental changes, natural resources, hazards, and sustainability through fundamental scientific and engineering research,
- Provide an intellectual, collegial, and productive environment that supports fundamental research and promotes collaboration,

- Build links between the earth sciences and other disciplines as required to address increasingly complex problems of compelling intellectual and societal importance,
- Strengthen communication with, and outreach to, the university, alumni, and the world,
- Enhance extramural funding and support for research, teaching and outreach,
- Strengthen education programs within the school, and
- Make an understanding of earth processes an essential component of a Stanford education.

In order to achieve these goals, many different strategies and tactics will be developed and implemented. Near-term focus will be placed on building upon work already begun in some of the following areas: expanding undergraduate recruiting efforts and program offerings; developing a school-wide Ph.D. program and building the endowment for the Interdisciplinary Program in Environment & Resources (IPER); continuing and expanding the school's leadership role in Stanford's Environmental Initiative and Institute; developing a Center for Computational Geosciences; reorganizing and increasing support for advanced analytical facilities; and building a rigorous communication and outreach program to raise the visibility of the school and the work done here.

Details on some of these school priorities for the upcoming year follow.

#### **Stanford's Initiative on the Environment**

The School of Earth Sciences is playing a leadership role in Stanford's environmental initiative. The school has contributed significantly to the establishment of the Institute for the Environment, planning for an Environment and Energy building, and the coordination and articulation of a seven-school environmental initiative that is part of the comprehensive campaign. Programmatically, Earth Sciences will play an integral role in the research and teaching programs of the Institute, leveraging the school's expertise in water, energy, and environmental science and engineering to further develop interdisciplinary connections through the Institute with the Schools of Engineering, Law, and Humanities and Sciences and the GSB. Earth Sciences' two interdisciplinary degree programs, Earth Systems and IPER will provide the educational core for the Institute.

#### **Interdisciplinary Program in Environment and Resources (IPER)**

This interdisciplinary Ph.D. program is now in its second year and is attracting outstanding applicants. For 2004/05, the program received over 120 applications from exceptional candidates for only five slots. Anticipated enrollment for next year will be 18 graduate students. Initial funding from the Luce Foundation will be exhausted by next year, so aggressive fundraising has begun to raise funds needed to support the program in the future. In addition, the school is trying to secure and outfit permanent space to house the program.

#### **Facilities**

An area of special note is that of space. The school is addressing issues of storage, graduate student space, and shared research facilities. It is the school's hope that it can achieve some of its strategic goals of fostering cross-school collaboration by reallocating and re-purposing space for activities that are in line with interschool and interdisciplinary activities.

The school's vision is that it will become the world leader in integrated earth and environmental sciences and engineering. As the strategic plan becomes finalized, the school will readjust its priorities to ensure that decisions and actions are leading towards the goals articulated in the plan and achievement of that vision. The school has made a strong beginning to that process, and is committed to marshaling its financial resources to meet those goals and achieve that vision.

#### **SCHOOL OF EDUCATION**

Over the next year the School of Education will focus on three programmatic goals: (1) to make existing academic programs more efficient and effective; (2) to increase the visibility of the work being done to improve education and communities for youth; and (3) to expand its efforts in the areas of learning and technology and leadership. To meet these goals, new outside funding will be needed to compensate for budget reductions of the past three years.

#### **Academic Programs and Leadership Initiatives**

In 2003/04 the school designed a new Masters program, Policy, Organization, and Leadership Studies, that emphasizes the organizational and policy context of education. The goal of the program is to prepare students to act as successful participants, leaders, and change agents in a range of educating institutions, including traditional, charter, and private schools;

nonprofit organizations; businesses, colleges and universities; and public sector agencies. The first class of students will be admitted in 2004/05.

This new program builds on several leadership initiatives recently launched by the school. The joint MBA/MA in Education Program, designed to train individuals to bring expertise in management and educational research to leadership roles in private and public educational institutions, was created two years ago and is believed to be the only joint program of its kind. The Stanford Educational Leadership Institute, a partnership between the School of Education and the Center for Social Innovation at the GSB, provides educational leaders with the support and tools they need to design and manage schools as high-performing organizations and draws upon knowledge from both business and education. School and community partnership programs with a leadership component include both the School Redesign Network and the John Gardner Center for Youth and Their Communities. A research project on leadership, launched in the spring of 2004, focuses on the assessment of professional development programs for school principals. The School of Education hopes to build upon the synergy created by trying to redesign schools so leaders can be effective, and trying to develop effective training for the leaders. The possibility of expanding efforts in the area of leadership (e.g., creating a summer professional development program for principals) and creating a center that would integrate and create closer links among the various leadership programs is currently being considered.

Several years ago the school put its Prospective Principals Program on hold and continues to study how a unique program can be developed to train highly competent principals. The program will be restarted only if the school can offer a substantively stronger program than those offered by public colleges and universities.

### **Improving Education and Communities for Youth**

The School Redesign Network helps educators build schools that are structured to ensure student success. A growing number of educators and policymakers believe that today's large schools need to be replaced with smaller schools that are better designed to support teaching and learning. The Redesign Network is a learning collaborative that helps school leaders to develop a broader knowledge base about school design, teaching and learning, curriculum and assessment, and a deeper

understanding of the features of schools that have been successfully redesigned to support excellence and equity.

The Gardner Center for Youth and Their Communities works in close partnership with community members – both youth and adults – to build communities that work for youth, and to develop young people who will grow up to lead them. The center was created to develop new knowledge, practice, capacity, and leadership around youth development and learning. A central goal of the center is to develop and disseminate effective strategies to cultivate leadership capacity within the youth of the communities involved in the center.

To address a severe space shortage and to gain visibility for partnership programs with practitioners and community leaders, the school hopes to begin construction in the spring of 2005 to remodel the Old Bookstore to create a Center for School and Community Partnerships which will serve as headquarters for both school redesign efforts and the Gardner Center.

Other projects that involve sustained partnerships with practitioners and policymakers include:

- Policy Analysis for California – a cooperative effort with UC Berkeley's School of Education to provide analysis and assistance to state policymakers,
- Stanford Center on Adolescence – a research center that promotes interdisciplinary research related to adolescents,
- Charter High School in East Palo Alto – a professional development school for Stanford's Teacher Education Program,
- Stanford Institute for Higher Education Research – a research center that examines contemporary higher education planning and policy issues from a wide range of analytical perspectives; and
- MacArthur Network on Teaching and Learning – a network to share knowledge on research and development, and to examine strategies for connecting research and development with practice.

### **Learning and Technology**

The school offers both a Masters and a Doctoral program in learning and technology. Many faculty members collaborate on projects within the Stanford Center for Innovations in Learning (SCIL), directed by School of Education Professor Roy Pea. And to keep

pace with California credentialing requirements and new opportunities for using technology to enhance education, the school has invested resources to integrate technology into the curriculum and to offer technology training to the students in the Teacher Education Programs. To support these and other technology initiatives, the school has made a substantial investment to support the infrastructure needed to provide service and tools to the varied programs within the school.

### **SCHOOL OF ENGINEERING**

The School of Engineering is deeply involved in several new initiatives that will continue its leadership in engineering research and education. Virtually all of these initiatives are multi-disciplinary and will leverage expertise and potential across departments, schools and disciplines at Stanford. While the school will maintain and build upon historical strengths in information technology, it plans to invest significant resources in programs focused on bioengineering, environment and energy, nanotechnology, photonics, and computational mathematics and engineering.

The new Bioengineering Department, which reports to both Engineering and Medicine, has been created. A chair and co-chair have been appointed, degree-granting authority has been approved by the Faculty Senate, faculty searches are under way, and graduate students are being admitted for September 2004. Curriculum development and other teaching programs are being actively worked on. As anticipated, student interest at both the undergraduate and graduate level is tremendous. Initially headquartered in the Clark Center, the department will complement Bio-X research activities as well as biomedical activities in several other engineering departments.

The new Environment and Energy initiative will build on current strengths among environmental engineering faculty and pockets of focused excellence in other departments. It will also provide a tremendous opportunity to leverage research and teaching across Stanford, including Earth Sciences, Natural Sciences, Social Sciences, Law and Business. The Global Climate and Energy Project (GCEP) is already having a remarkably renewing effect on several departments, particularly Mechanical Engineering, Civil and Environmental Engineering (CEE), Materials Science and Engineering, and Chemical Engineering. New research projects have been initiated, planning for faculty hires now includes opportunities in the energy technologies area, and

student interest is strong. The university-wide initiative on the environment is having a profound effect on the CEE department, which is in the process of reinventing itself around a sustainability theme.

Nanotechnology is a very broad and frequently overhyped term. At its core, however, there are wonderful opportunities for basic research. At Stanford, over one-hundred faculty work on diverse topics that could be considered nanotechnology. The unifying prerequisite for this kind of research is access to sophisticated and expensive equipment that will allow faculty and students to build, characterize, and test nanostructures. It is clear from the success of the Stanford Nanofabrication Facility (SNF) that shared equipment facilities not only make economic sense, but also are a way to build multi-disciplinary relationships and to create a community of scholars. The school has made great strides in enhancing the SNF and building a robust nanocharacterization facility (located in McCullough). The school intends to move forward with similar centers related to soft materials and computation, as well as enhancing the facilities at the Stanford Synchrotron Research Laboratory at SLAC.

These initiatives, along with new programs in photonics and computational mathematics, are creating a sense of excitement about the future of the school, both internally and externally. They are building the academic infrastructure for a future where the opportunities for engineering are clearly multi-disciplinary. The School of Engineering feels prepared to seize these opportunities.

The challenges Engineering faces in the short term are those associated with the budget issues the entire institution is facing. The School of Engineering is challenged to maintain its basic teaching and research mission along with a quality of life for Engineering departments and faculty that will inspire them to focus on the great opportunities for the future. There are also obviously substantial financial needs to fund new initiatives going forward. These are the current high priorities for the school's development office.

### **HOOVER INSTITUTION**

In 2004/05, the Hoover Institution will continue its program of public policy research, engage in active collecting of archival and unique library materials, distribute the research findings of the Hoover fellows, and disseminate information about the library and

archives collections through an active outreach and communications program.

The Institution's overarching purposes are to collect the requisite sources of knowledge pertaining to economic, political, and social change, and to understand their causes and consequences; to analyze the effects of government actions relating to public policy; to generate, publish, and disseminate ideas that encourage positive policy formation; and to convey to the public, the media, lawmakers, and others an understanding of important policy issues and promote vigorous dialogue.

The Institution's research program continues its focus on nine institutional research initiatives that embrace the principles that define the Hoover Institution's mission: individual, economic, and political freedom; private enterprise; and representative, yet limited, government. From the academic disciplines of economics, history, law, and political science, Hoover fellows strive to conceive and disseminate ideas defining a free society in the form of institutional book projects, conferences, and forums. In addition, fellows pursue their individual research in U.S. politics, economics, and political economy, and area studies of foreign policy and international security. The goal of the research program is to produce analytical studies and other publications that convey important concepts to a broad audience, converting abstract academic scholarship to descriptive applications that minimize jargon known only to specialists in the field.

Of the nine research initiatives, major emphasis will continue on American Public Education, which is completing the sixth year of a multi-year effort led by Hoover's Koret Task Force on K-12 Education. The Property Rights, the Rule of Law, and Economic Performance initiative provides an overview of the importance of property rights to a free society. The purpose of the initiative on American Individualism and Values is to embark on an intellectual inquiry into "the American way of life" and its appropriate "safeguards." The National Security Forum represents the ongoing effort to involve Hoover fellows, other scholars, practitioners, and government officials in examining specific issues relating to international security.

Research activity continues on the Institution's five other initiatives—Accountability of Government to Society; Capital Formation, Tax Policy, and Economic Growth; End of Communism; International Rivalries

and Global Cooperation; and Transition to Democratic Capitalism—but at a lower level of activity

The Hoover Library and Archives continues to pursue its original mission, as envisioned by Herbert Hoover, to gather archival and special collections, to preserve these rare documents on modern history, and to serve as a repository for rare and unique materials. While the collecting efforts focus on all aspects of political, economic, and social change, emphasis is being placed on three collecting priorities: the history of communism, transition to democracy and economic freedom, and cultural conflict, especially between the West and the Islamic movement. As an example, a multi-year effort to microfilm and preserve the archives of the Kuomintang party in Taiwan has been initiated.

An area of special importance is the expanded effort to preserve the unique materials collected during the twentieth century to insure against loss through damage, material deterioration, and normal wear and tear. To that effect physical preservation activities are increasing. Additionally, a vastly expanded digitization program aims to make the collections safer and more readily accessible to users on-site and over the internet.

Hoover fellows and other scholars are also being encouraged and supported in their research efforts based on material found in the archives. Original documents found in Hoover's Russian/CIS collection serve as the basis for a series of books published in both English and Russian, and extraordinary interest in the Radio Free Europe/Radio Liberty archives has resulted in a major international scholarly conference planned for 2004/05.

With the explosion of round-the-clock news cycles; global satellite, cable and broadband media information access; and increased attention given to public policy issues, competition for audiences seeking relevant data continues to intensify. The objective of the Institution's communications and outreach functions is to promote the ideas and scholarship of Hoover fellows, publicize the holdings of the library and archives, and promote accessible dialogue on important policy issues.

Recent and proposed new communications activities have focused on the internet, periodical publications, radio, and engagements with print and broadcast journalists. The Hoover Institution communications program includes:

- Weekly Essays, a series of op-eds by Hoover fellows that appears in a number of periodicals, is syndicated to newspapers and distributed internationally,
- Books, essays, and articles written by Hoover scholars appearing in the popular press, newspapers, and scholarly journals and on the Hoover website,
- Opinion articles by Hoover fellows appearing on the op-ed pages of major newspapers, magazines, and periodicals, and on the internet,
- The Media Fellows program, which provides working media the opportunity to interact with the circle of resident Hoover fellows on site at the Hoover Institution,
- Periodical publications: China Leadership Monitor, Hoover Digest: Research and Opinion on Public Policy, Education Next: A Journal of Opinion and Research, and Policy Review,
- Hoover's weekly television program, Uncommon Knowledge, broadcast and distributed by PBS, Webcast on demand over the internet, and broadcast on radio around the globe by National Public Radio Worldwide and Armed Forces Radio,
- Television and radio appearances by fellows on national and local news, public information forums, and call-in radio programs, and
- News releases and daily reports detailing the intellectual product of the institution via Hoover's quarterly newsletter and on the Hoover home page on the World Wide Web.

Facility enhancements are designed to support the programmatic needs of the institution and the university. In 2004/05, construction of a state-of-the-art "conference room in the round" will be completed. This room will feature circular, tiered seating for up to 50 people and will provide capability for live, two-way video and audio teleconferencing and state of the art multimedia presentations. Each of 40 fixed seats will be equipped with high speed computer and internet access through an internal network. This room should greatly enhance the university's conferencing capacity.

### **SCHOOL OF HUMANITIES AND SCIENCES**

In 2003/04, the School of Humanities and Sciences (H&S) carried out a larger than usual number of searches to fill open positions in important areas

throughout its 28 academic departments. As a result, the school will welcome several dozen new faculty colleagues at the beginning of the 2004/05 academic year. In addition to strengthening core departments throughout the school, H&S is now in the third year of building new programs in astrophysics and archaeology. Each is becoming a home to exciting new research and educational programs, and creating new opportunities for interdisciplinary and interdepartmental work. In the coming year, ground will be broken for new facilities for these two initiatives, providing state-of-the-art space for faculty and students working in these programs.

Additionally, two other major initiatives are now in their early stages. One aims to create a new life for the arts at Stanford. The school seeks to make offerings in the three arts departments—Art and Art History, Music, and Drama — more vibrant and enriching for the entire campus community. Through these departmental efforts and the programs at the Cantor Art Center, and in partnership with Lively Arts, H&S aims to make the arts at Stanford an increasingly important way to reach out to neighbors in the community. As part of the Arts Initiative, the school is developing a new interdisciplinary program in Film and Film Studies. The program will extend Stanford's tradition of combining scholarship and practice. It will build educational programs that span from film theory to film making, and that bridge to the other arts, to literatures, and to Engineering and other schools at Stanford.

The second initiative will enhance Stanford's already-considerable strength in international studies. Within H&S, the school will initiate a combined division of International, Comparative and Area Studies. This new division will support existing area studies programs, enable the school to begin new initiatives such as Islamic Studies, and form a locus to interact with partners throughout the university, such as the Institute for International Studies. One particular duty — and pleasure — for the School of Humanities and Sciences within the overall university is that it represents so many aspects of international study — languages, arts, religions, history, literature— and thus supports, in educational depth, the understanding that underpins and benefits the policy and outreach work of colleagues elsewhere at Stanford. H&S hopes to create more opportunities for undergraduates to study international topics in disciplines across the school in the next few years.

In order to continue to attract outstanding graduate students, H&S has established more robust and competitive graduate aid packages for all Ph.D. students. It has also worked with departments to increase the diversity of its graduate student population, and is seeing an increasing number of students from traditionally underrepresented groups in its entering Ph.D. cohorts. At the undergraduate level, the school's Curriculum Committee has begun a new effort to examine and strengthen all departmental and interdisciplinary (IDP) majors. Three departmental majors (Chemistry, History, and Psychology) have been reviewed to date, and a systematic effort has been launched to strengthen the IDPs through increased participation by tenure line faculty. Faculty ability to contribute to IDP curricula has also been increasingly incorporated into relevant faculty recruitment efforts. As it moves forward, H&S will continue to balance disciplinary strength with interdisciplinary opportunity, further enhancing this important characteristic of the university. Maintaining this creative balance requires careful choices and clear priorities in allocating resources, and this will remain a challenging goal in the coming year. The school's ongoing fundraising efforts will likewise seek both to strengthen its core, and to fund innovation and foster new interactions.

### SCHOOL OF LAW

The Law School has enjoyed great success over the past five years. It has just about completed the first major renovation of the school's physical plant in 25 years, including a complete modernization of the 16-classroom academic building, and a renovation of the law library to create a spacious modern reading room. The Law School has retained a significant number of faculty and appointed 11 new professors. It has built and/or strengthened a number of academic programs. The Law School launched new centers for Internet & Society, E-Commerce, and Biolaw. It developed a joint Stanford-Yale Junior Faculty Forum to identify and mentor promising new legal scholars. It launched a new Stanford Community Law Clinic in East Palo Alto to help serve the legal needs of impoverished clients in neighboring communities, and expanded clinical offerings to include community law, cyberlaw, civil rights law, criminal prosecution, education advocacy, environmental law, and Supreme Court litigation. It introduced a new LLM degree. It has met budget reductions in excess of \$1 million while preserving top quality support to its faculty and students.

Going forward, the Law School's key challenges are to keep replenishing its faculty, to enhance its newly expanded clinical education programs, and to continue to build a law school campus whose physical infrastructure facilitates academic interchange and collaborative study. Specifically, the Law School aims to:

- Rebuild its tenure-line faculty from 38 professors to its historic level of 45, emphasizing the hiring of junior faculty members and specialists in underrepresented fields such as public law and public policy, including constitutional law and administrative law; environmental and natural resources law and policy; international law and business; in-house clinical education, an area in which the school is sorely lacking compared to peer schools; and the empirical study of law, in which the Law School has existing faculty strengths and tremendous future potential to create lasting and valuable research,
- Build its clinical faculty line from two to five professors whose specialty is training students to represent actual clients in live cases, emphasizing practical training and the development of professional responsibility, while continuing to support the new Stanford Community Law Clinic in East Palo Alto,
- Build a residential complex for law students adjacent to the Law School to create an integrated community in which collaborative study, debate and interchange flow seamlessly from classroom to dorm room, and
- Continue to build interdisciplinary research, teaching and policy programs in law, economics and business; law, science and technology; environmental and natural resource law; and international law, business and policy.

While focusing on these initiatives for future development, the Law School will need to continue providing for existing programs that are essential to maintain its competitive position in relation to peer schools, including:

- Summer research support to faculty members,
- Housing assistance to recruited faculty members additional to university programs,
- Loan repayment assistance to graduates in low-paying public interest jobs, and

- Maintenance of strong levels of student service in the Law School's independently operated offices of admissions, financial aid, registrar, career services, and public interest programs.

### SCHOOL OF MEDICINE

During 2003/04, the School of Medicine made significant progress in its strategic plan for the 21st Century, called "Translating Discoveries." In the coming fiscal year, initiatives associated with the plan will be further designed and implemented. The major areas of emphasis are described below.

#### Education

The new medical student curriculum was launched with the class entering in fall 2003. During 2004/05, further development of the new medical student education will include the rollout of scholarly concentrations, development of the third and fourth-year curricula, and improvements to student and curriculum evaluations. The new medical school application system, MESA, was introduced in 2003/04, transforming a previously paper-intensive process into an all-electronic, paperless system. During 2004/05 the School of Medicine's applicant review and acceptance criteria will be reevaluated and, if necessary, revised to better reflect the objectives of the new curriculum.

For the biosciences graduate education and postdoctoral training programs, emphasis in 2004/05 will be placed on increasing the exposure of graduate students and postdoctoral scholars to clinical medicine and translational research, advancing the postdoctoral scholar/scientist career as an attractive choice, promoting increased diversity among postdoctoral scholars, and fostering successful career transitions from postdoctoral scholar to independent scientist. The school will also initiate a career counseling center for graduate students and postdoctoral scholars.

For residents and clinical fellows, 2004/05 goals include developing research opportunities similar to the scholarly concentrations developed for medical students, providing opportunities for increased scholarship, developing minimum program requirements and standards for all postgraduate medical education programs, and implementing a more "customer service" oriented administrative structure for managing appointments.

#### Interdisciplinary Research and Education Programs

In 2003/04, directors for three of the four new Stanford Institutes of Medicine – Neuroscience, Cancer and Stem Cell Biology and Medicine, and Cardiovascular — were appointed, signaling the formal start of the new interdisciplinary programs that will bring together scientists and clinicians in focused areas of the biosciences to foster the translation of research discoveries into patient care advances. Recruitments for new institute members are underway and will constitute a significant portion of new tenure line appointments in 2004/05. The selection and appointment of the fourth director for the Stanford Immunology, Transplantation and Infection Institute will take place in 2004/05.

The school will make additional investments in 2004/05 in the further development of Bio X and the new Department of Bioengineering – two programs that bring together disciplines inside and outside the School of Medicine. The school will share in the further build out of research space in the Clark Center for new faculty recruitments in Bioengineering and will welcome the first incoming class of graduate students in this department in fall 2004.

In 2004/05, the university, under the leadership of the School of Medicine, will seek official designation from the National Cancer Institute (NCI) as a Comprehensive Cancer Center. A Comprehensive Cancer Center has depth and breadth of research activities in basic research; clinical research; and prevention, control, behavioral, and population-based research, while also exhibiting a strong body of interactive research that bridges these scientific areas. In order to receive recognition as an NCI-designated Comprehensive Cancer Center, the center must meet these scientific requirements as well as provide outreach, education, and information on cancer to the community it serves. A significant milestone in the development of the center was the opening of the new clinical cancer center building and the recruitment of a clinical cancer center director in spring 2004. The Comprehensive Cancer Center structure fosters interdisciplinary collaborations within specific areas of cancer focus, such as lymphoma and Hodgkin's disease, cancer cell and tissue imaging, and cancer immunology. The application for NCI designation will involve faculty from almost all of the basic and clinical science departments, as well as from the schools of Engineering and Humanities and Sciences.

### **Clinical Centers of Excellence**

In 2004/05, the school will build patient care programs in the areas that support the Medical Center's identified "centers of excellence" and critical programs and services. The centers of excellence, which closely tie to the focus of the school's interdisciplinary institutes, include neuroscience, cardiac services, transplant, orthopedics and cancer. The school anticipates recruiting over the next 4 years an additional 60 to 70 medical center line faculty and clinician-educators to support the Medical Center's patient care programs.

### **Technology**

The school is making a significant investment in its technology infrastructure. In 2004/05, efforts will include the implementation of a "trusted network" model to enhance medical school security, continued implementation of the new School of Medicine Web architecture and supporting systems, development of an integrated and centrally managed school wireless network, the development of a Knowledge Management strategic plan, the continued development of a translation research data repository and the development of plans for a medical school Center for Clinical Informatics.

### **Facilities and Capital Plans**

Facilities planning and design will continue in 2004/05 for the first of the Stanford Institutes of Medicine buildings (SIM 1) and the school's new education and knowledge management facilities. To accommodate growth of ambulatory clinical programs and clinical research, the school is investigating the lease of significant off campus property in conjunction with the Medical Center. Off campus leases for research space to accommodate expansion of the Comprehensive Cancer Center and the interdisciplinary institutes are also being evaluated in the near term.

Pursuit of its strategic initiatives will require the expenditure of significant resources in 2004/05. The School of Medicine anticipates that its revenue growth will be adequate to cover the projected increase in operating expenses, but will not cover all of the investment in new initiatives. These initiatives will require a draw down of reserves – a necessary investment for the development of the medical school of the 21st Century.

### **VICE PROVOST AND DEAN OF RESEARCH**

The Office of the Vice Provost and Dean of Research and Graduate Policy has responsibility for the

development and oversight of research policy; oversight of the independent laboratories, centers, and institutes; policy development for Stanford's graduate education program; and management of the Offices of Technology Licensing (OTL), Science Outreach, Environmental Health and Safety (EH&S), and Research Compliance.

At the direction of the Provost's task force on campus diversity and with the support of a grant from the Irvine Foundation for Campus Diversity Initiatives, the Office of the Vice Provost and Dean of Research and Graduate Policy now coordinates activities in this regard with all Stanford's schools.

The Stanford Graduate Fellowship program, administered by the Dean of Research, currently supports 363 outstanding graduate students in 36 fields in science, engineering, and the social sciences.

The thirteen independent laboratories, centers, and institutes reporting to the Dean of Research encourage and support Stanford's interdisciplinary research and scholarship. These units provide strong programs that both complement and supplement Stanford's departmentally based research and scholarship, in addition to attracting excellent students and external scholars. In 2002/03, the organizations reporting to the Dean of Research accounted for 18% of Stanford's research volume (excluding SLAC). The newest independent programs include the Global Climate and Energy Project, the Kavli Institute for Particle Astrophysics and Cosmology, and the Stanford Institute for the Environment.

The Global Climate and Energy Project (GCEP) is working to develop technologies for supplying the energy required by the developed and the developing world while at the same time reducing greenhouse emissions. With a group of global companies (including ExxonMobil, GE, Schlumberger, and Toyota) committing funding of \$225 million over 10 years, GCEP will begin a sustained effort to create a path toward a long-term energy future with much lower greenhouse emissions.

The Kavli Institute for Particle Astrophysics and Cosmology (KIPAC) was founded in September 2003. Beginning in October 2005, it will be housed in the new Fred Kavli Building, constructed with a generous gift from Fred Kavli and the Kavli Foundation, on the SLAC site. The mission of the Institute is to bridge the theoretical and experimental physics communities, and

bring their combined strengths to bear on some of the most challenging and fascinating problems in particle astrophysics and cosmology. KIPAC scientists work on a variety of theoretical and experimental research issues, and currently have three major projects under their consideration: Supernova Acceleration Probe (SNAP), Large Aperture Synoptic Survey Telescope (LSST), and Gamma Ray Large Area Space Telescope (GLAST).

The Stanford Institute for the Environment (SIE) addresses one of the major challenges of the 21st Century: providing for the needs and health of people today and in the future—water, food, energy, and shelter—while sustaining the life support systems of Earth—water, air, climate, and ecosystems. The SIE will mobilize faculty from all of Stanford's schools to address the critical environment and resource problems of our age. The institute will promote an environmentally sound and sustainable world by developing creative solutions to these challenges through the integration of science, technology, and policy; educating the next generation of leaders and problem solvers; and actively collaborating and facilitating dialogue with key public and private leaders and the broader community. Through interdisciplinary research, education, and outreach, the SIE will help assure that the current generation has its needs met while preserving the Earth's resources and global systems for the benefit of future generations.

### **VICE PROVOST FOR UNDERGRADUATE EDUCATION**

The Office of the Vice Provost for Undergraduate Education (VPUE) promotes the highest quality education for all undergraduate students at Stanford. VPUE programs engage first- and second-year students in the excitement of scholarly inquiry, and encourage the formation of faculty-student mentoring relationships around mutual intellectual interests for students during all four undergraduate years. VPUE reinforces collaboration and partnerships among faculty across the university by nurturing a culture of excellence in teaching and mentoring.

Modest budget reductions for 2004/05 are accompanied by structural reorganization that consolidates and rationalizes the delivery of academic services. Innovative new programs reflect the priority of improving student access to and participation in VPUE academic and curricular opportunities. Program expansion in 2004/05 implements the second of three phases of

course development for the Writing and Rhetoric Requirement (WRR) effective for the Class of 2007. The 2004/05 budget also strengthens the infrastructure for instruction in writing and oral communication and for Undergraduate Research Programs toward the goal of preparing all students for working with faculty on scholarship and research.

Initiatives in diversity outreach and advising demonstrate the VPUE commitment to the goal of optimal student participation. Analysis of student participation in introductory seminars and undergraduate research raises a number of questions: Who is not participating? Why not? To what extent are students matched with opportunities and services that would most benefit them?

The VPUE 2004/05 budget supports the continuing appointment of the Special Assistant for Diversity Outreach who began in 2003/04 to work with VPUE in implementing recommendations of the Undergraduate Task Force of the Provost's Diversity Action Council. For this initiative, diversity is construed broadly to include racial and ethnic identity as well as membership in groups defined by attributes such as gender or varsity athlete. The Special Assistant works to identify students who typically do not participate in VPUE programs and helps them take full advantage of VPUE services and opportunities by building partnerships with offices and colleagues across the university.

In 2003/04, VPUE appointed the first Faculty Director of Advising to oversee the development of new approaches to advising that would complement the transformation of the curricular landscape accomplished over the past eight years. The 2004/05 budget supports a pilot residential advising program in Wilbur Hall. Along with increased numbers of faculty advisors for freshmen, a new Residential Academic Director will coordinate academic resources for Wilbur Hall residents. The Academic Director works on site and is therefore more easily accessible to students for informal, individual consultations. The goal is to provide more timely and proactive advising that directs students to academic services, such as tutorials, and to curricular opportunities, such as introductory seminars, research, and honors.

Another advising initiative reorganizes tutorial and new student services. Tutoring for introductory general education courses such as chemistry, mathematics, and economics, will be administered through the Center for

Teaching and Learning (CTL) to take advantage of the existing relationship between CTL pedagogy experts and the faculty and graduate student assistants. This vertical integration will create opportunities for tutors, professors, and graduate students to build more coherent teaching teams in key areas of general education. Advising services for first-year and transfer students, which were previously distributed across the Undergraduate Advising Center and the Dean of Freshman and Transfer Students office, will be rationalized through a unified administrative structure to provide better coordination. This reorganization will reallocate resources from a dispersed to an integrated model resulting in streamlined student access.

Investment in writing programs continues to grow toward full implementation of the Writing and Rhetoric Requirement in 2005/06. The Advanced Placement exemption from one-quarter of writing instruction ended with the entering class of 2007. All students must now complete two writing and rhetoric courses as well as a Writing-in-the-Major course for a total of three required courses. In 2003/04, 30 new writing and rhetoric courses with an emphasis on oral presentation were offered to over 300 students; this number increases by 60 additional courses in 2004/05. The new courses explore the complex interplay among written, oral and multi-media presentation tools, and teach students how to present their ideas in such varied formats as audio essays for radio broadcast, websites, and poster sessions for research symposia.

The new required courses emphasize written and oral communication as mandated by Faculty Senate legislation. The 2004/05 budget includes attention to infrastructure support for tutorial services in writing and oral communication, and for technology-enhanced classrooms. The Stanford Writing Center, staffed by professional writing instructors and selected undergraduate peer tutors, continues its planned expansion in the 2004/05 budget. In 2003/04 through winter quarter, the Center held more than 1,400 individual appointments, compared with 488 in 2001/02 and 1,013 in 2002/03 for the same period; workshops for classes reached an additional 2,400 students in 2003/04. The Oral Communication Tutorial (OCT) program assigns specially trained advanced undergraduate tutors to each of the new writing and rhetoric classes, enabling every student to receive coaching and individualized feedback on rehearsals of class oral presentations. An unanticipated benefit of the OCT program is the opportunity

for the tutors to develop close mentoring relationships with the instructors around issues of pedagogy.

Classroom support has been facilitated by the successful Academic Technology Specialist program in VPUE. The 2004/05 budget expands the level of technical service for classrooms equipped for interactive workshop instruction, in response to the demands of the growing number of required courses that use technology-enhanced classrooms.

Through the Undergraduate Research Programs (URP) office, VPUE encourages faculty and students to work together on research projects by providing grant support for individual faculty, for departments, and for students working on honors. The 2004/05 budget supports enhanced staffing infrastructure for undergraduate research so that faculty and students in social sciences, natural sciences, and humanities can find the corresponding disciplinary specialization and expertise in the URP office. Continuing, steady growth in the amount of grant funds for undergraduate research in 2004/05 responds to the ongoing enthusiasm of faculty members who involve more students each year in supervised projects.

In 2004/05, the research enterprise will be extended into a residential location on a pilot basis during the academic year. For three years, Summer Research College has created a residential environment for over 300 students working on faculty research projects for 8–10 weeks over the summer. Since 1993, Honors College has invited about 150 students from 15–20 departments to live together on campus in September while they get a head start on their honors projects. The pilot Potter College is for 90 sophomores, juniors and seniors with an interest in research, honors, writing and other creative arts. Located in Sterling Quad adjacent to Freshman Sophomore College, Potter College will benefit from proximity to the faculty dean's house for dean-hosted community events. A faculty affiliates program is part of the plan for enhancing Potter College's focus on research. This pilot program builds on the success of the Freshman Sophomore College and the South Row Faculty Dean's house in integrating social and intellectual experiences in a residential setting.

Stanford Introductory Seminars (SIS) continue to be the cornerstone of VPUE programs, providing opportunities each year for over 240 faculty members to teach over 2,500 first- and second-year students in small courses centered on common intellectual

interests. The vitality of this educational experience establishes a foundation for students and faculty alike to seek further intellectual connections and mentoring relationships. A sign of faculty commitment to the community of peers in SIS is the stability of participation in faculty discussions sponsored by the Freshman and Sophomore Programs office. Department chairs praise the SIS program as a testing ground for innovation in curriculum and teaching; encouragement for and expertise to guide these experiments come from faculty development activities attended by over 350 faculty members each year. The 2004/05 budget continues to support creating and sustaining the community of scholars devoted to sharing teaching practices in introductory seminars.

Building communities of scholars around common teaching experiences is a hallmark of the Office of the Vice Provost for Undergraduate Education. The 2004/05 budget continues to support gatherings for faculty in all areas of undergraduate education, recognizing the crucial importance of nurturing faculty commitment to and enthusiasm for excellence in teaching and mentoring. At the same time, the 2004/05 budget acknowledges the obligation to improve student access to and participation in the academic and curricular opportunities that have helped transform undergraduate education at Stanford over the past eight years.

### **STANFORD LINEAR ACCELERATOR CENTER**

As a National User Facility of the Department of Energy (DOE), SLAC continues to provide world-class experimental facilities to about 3,000 scientists annually from all over the world in the two main research programs of High Energy Physics (HEP) and synchrotron radiation science. The HEP facilities deliver electron and positron beam characteristics unmatched anywhere in the world. The ultra-high intensity x-ray synchrotron radiation at SPEAR3 of the Stanford Synchrotron Radiation Laboratory (SSRL) serves many areas of science including materials sciences, structural biology, and chemistry. The powerful synergy of the two SLAC research programs has led to development of unique capabilities for scientific exploitation, such as the Sub-Picosecond Pulse Source (SPPS).

#### **High Energy Physics**

SLAC's main particle physics program is the PEP-II/BaBar B Factory which examines a cosmological mystery: the crucial matter-antimatter asymmetry that led to the existence of the visible universe. The BaBar

collaboration (600 physicists from 10 countries) continues to produce physics of exceptional quality at a prodigious rate. Provided there is sufficient budget, operation for eight and a half months is planned in 2004/05. The run will be followed by a shutdown of about six months, through December 2005, to install major improvements for the PEP-II accelerator and the BaBar detector. These improvements are part of a series of upgrades that is expected to increase the BaBar data sample by a factor of almost 10 by the end of the decade.

The primary focus of the laboratory's future accelerator-based particle physics program is the linear collider (LC), which is also the highest priority new facility for the field of high energy physics. SLAC is a leader in the development of the technologies to realize an electron-positron LC designed to explore the new fundamental physics at the TeV energy scale. Later in 2004, the high energy physics community will make a choice whether to pursue the warm x-band RF technology option for the main linacs of the LC, or whether to pursue a superconducting RF solution. While SLAC strongly supports a design approach for the LC that incorporates warm RF technology, believing that this approach has both a significantly higher energy reach and is the most risk-averse to achieving the physics goals, the laboratory will play a leadership role in the design, construction and exploitation of this facility independent of the technology choice. In 2004/05, the plan is to continue R&D necessary to build an LC at minimum cost, involving the United States and foreign partners in this process.

In the last decade, SLAC's high energy physics mission has broadened into the closely related fields of particle astrophysics and cosmology. The GLAST mission represents SLAC's first major venture into particle astrophysics. GLAST is a space-based gamma-ray telescope that will be launched in 2007. The GLAST research program will explore how cosmic accelerators work and what they are accelerating, including the study of gamma-ray bursts and observations of jets emanating from active galactic nuclei and galactic black holes. In addition, GLAST will search for Dark Matter in our galaxy. The telescope is being built at SLAC by an international collaboration led by the Stanford team (SLAC, Physics Department and HEPL). In the summer of 2005, the instrument will be completed and shipped out for further testing prior to integration with the satellite. In addition to GLAST, the new Kavli

Institute for Particle Astrophysics and Cosmology is expected to bring new projects and research opportunities to SLAC.

### **Synchrotron Radiation Science**

Synchrotron radiation science is perhaps the most rapidly expanding element in the changing face of sciences at SLAC. The new synchrotron light source, SPEAR, has just been installed and commissioned. Users have been brought back on-line in less than a year from the time the old machine was decommissioned. SPEAR is a low emittance, high current synchrotron light source that delivers beams whose intensity and brightness are competitive with any light source in the world in its intermediate energy class. SPEAR3 has significant expansion capacity for new beam lines. The first two new beam lines are already in fabrication. The first beam line, funded by the California Institute of Technology with a gift from the Moore Foundation, is designed for macromolecular crystallography. The second one, for the study of materials and nanostructures using microscopy and emission techniques, is funded by the DOE. Both beam lines are expected to be completed in 2006. In the building that houses these new beam lines, about 6,000 square feet of new space will be completed in 2004/05 for the X-ray Laboratory for Advanced Materials at SSRL.

The second strategic component of the synchrotron science program is the development of a completely new class of light sources based upon electron linacs. This

has already begun with the Sub-Picosecond Pulsed Source (SPPS) which is delivering 80 fsec pulses of hard x-rays that are being used to gain first experience with the application of x-ray scattering and absorption techniques to study properties of materials on this very short time scale. The next major step is the construction at SLAC of the Linac Coherent Light Source (LCLS), which will be the world's first x-ray free electron laser. LCLS will deliver intense femtosecond coherent x-ray pulses 10 billion times brighter than those from existing synchrotron sources. These extraordinary beams will explore previously inaccessible realms of structural dynamics in the chemical, biological and materials sciences as well as find new applications in nanoscale phenomenology, and atomic and plasma physics. Currently in its design phase, LCLS is expected to begin the construction phase in 2004/05. It takes advantage of the existing infrastructure at SLAC by utilizing the last third of the existing 3 km linear accelerator. LCLS is scheduled to become operational in 2008. The construction cost of about \$270 million is funded by the DOE.

### **Infrastructure**

SLAC has initiated a \$15.6 million project, funded by the DOE, to replace a significant portion of the aging underground mechanical utilities and to improve the seismic safety of several important research, experimental and computing facilities. The project, currently in the design phase, will begin construction activities in fall 2004.