

SECTION 2

ACADEMIC INITIATIVES AND PLANS

In this section we focus on the programmatic elements of the Budget Plan by describing important University-wide initiatives in undergraduate education and information technology, and by reviewing some of the principal planning issues in each of the major academic units.

UNIVERSITY-WIDE ACADEMIC INITIATIVES

Undergraduate Education

In 1997/98 the accelerated pace of curricular reform has resulted in substantial improvements in personalizing education for Stanford undergraduates. The benefits of education at a research university are now fully complemented by a fine college education at Stanford, with faculty involved in mentoring individual students in freshman seminars through senior year honors projects and research seminars. The 1998/99 plan calls for institutionalizing of these successful initiatives and for embarking on new activities to link residential and academic support.

Evidence for the acceleration of successful initiatives for the first and second years can be seen in the programs of Stanford Introductory Studies (SIS) — Stanford Introductory Seminars, Introduction to the Humanities, Sophomore College, the SME Core, and the Large Introductory Course Project.

STANFORD INTRODUCTORY SEMINARS – SIS enrolled 1200 freshmen and sophomores in over 75 seminars in 1997/98. More than 100 seminars will be offered in 1998/99, all taught by Academic Council faculty.

INTRODUCTION TO THE HUMANITIES – These new course options enrolled over 500 students in this first year of the three-year phased-in implementation for the new Area One requirement. Extraordinary energy and leadership from senior faculty teams have led to new courses that will double the capacity for enrollment, serving over 1000 of the 1600 freshmen in 1998/99. Investments in Web technology to improve the student assignment process have accompanied the faculty effort for curricular reform.

SOPHOMORE COLLEGE – This late-summer program doubled in 1997 to 144 students, and will double again for 1998 with 24 seminars enrolling 288 students. Plans to divide the College into two residence sites will enable the program to continue the personalized scale of peer interaction and academic support in the residences that has proven so successful.

SCIENCE, MATH, AND ENGINEERING CORE (SME) – SME expanded its enrollments, with Earth Resources and the Sustainability of Life track doubling in size in 1997/98. An expansion plan features investment in student outreach through new publications. Facilities are also an important issue, as the program must relocate its laboratory and project space to a permanent site in 1999/00.

LARGE INTRODUCTORY COURSE PROJECT – This project is an example of the responsiveness of Stanford Introductory Studies programs to individual faculty initiatives. The popular Economics 1 course, under the direction of Professor John Taylor, has reduced section size, improved selection and training of teaching assistants, and created a postdoctoral course

coordinator position to oversee and manage the pedagogy and logistics for the course, which enrolls over 1000 students each year. For 1998/99, this project will be extended to large introductory courses in chemistry, under the direction of Professor Daniel Stack.

Improvements and investments in the first two years of freshman and sophomore undergraduate education are matched by programs targeted at juniors and seniors who have declared majors. Initiatives at this level are organized through the major departments and interdisciplinary programs while the resources are allocated and managed centrally by the Office of the Vice Provost for Undergraduate Education which coordinates, oversees, and monitors the quality of departmental activities.

Two very different programs illustrate approaches to increasing the amount of personalized attention given to junior and senior students – Writing in the Major and the Majors Enhancements Program.

WRITING IN THE MAJOR – This program constitutes the second half of the University writing requirement. Directors of Undergraduate Studies in each major designate writing-intensive courses, and then work with faculty teaching them and with a writing pedagogy consultant to set up appropriate services to students in support of writing papers. Resources enable faculty and specially trained graduate student assistants to meet individually with students to provide feedback on their writing. Over 50 writing-intensive courses in all undergraduate majors, including those in the Schools of Engineering and Earth Sciences, were approved by the Writing Advisory Board for 1997/98.

MAJORS ENHANCEMENTS PROGRAM – This program relies on the initiative of faculty in departments and programs to organize activities that bring faculty and students together in settings outside the classroom. One successful example is in the Department of Physics where the Society of Physics Students sponsors faculty/student

gatherings, workshops for seniors applying to graduate school, and field trips, e.g. to the Lick Observatory. The program also supports peer advising programs in over twenty different majors as well as popular student/faculty colloquia and dinners. The goal is to provide an opportunity for faculty and students to extend their connections beyond the confines of the classroom, thus further personalizing undergraduate education.

New for 1998/99 is a program to encourage juniors to work closely with faculty in independent study. This new initiative, tentatively called Incentives for Independent Study, builds on faculty/student relationships established in the SIS seminars for freshmen and sophomores, serving as a bridge to senior honors projects for some students and/or as a one-time research experience. The goal is to increase the number of students participating in mentored scholarship and research beyond the 25% who currently complete bachelor's degrees with honors. Mechanical Engineering, Chemistry, Political Science, and English will participate in the pilot year.

In 1998/99, implementation of the recommendations of the Task Force on Residential Programs and Student Housing for Undergraduates will emphasize the complementarity of academic and residential programs. Two initiatives are in the planning stages. Two hundred additional freshmen will be assigned to two new all-freshman dorms where advising groups will be organized around enrollments in certain first year courses. Each group will have a freshman adviser, a graduate student mentor, and an upperclass advising associate to coordinate such activities as study groups and study-skills workshops.

Another residential initiative is a pilot program that will extend the activities and academic support provided by the Sophomore College and Honors College to students throughout the academic year. The sophomore program will be tried in a new dorm reserved for sophomores,

and will include workshops, orientation sessions, and peer advising that have been so successful during the intensive September Sophomore College. The extension of the Honors College will emphasize peer support among seniors working on honors projects, and presentations of work in progress for all students in the residence, thus encouraging sophomores and juniors to consider the benefits of undertaking a senior thesis.

Information Technology Initiatives

Major information technology initiatives are underway to support new paradigms in research, instruction, and learning. Stanford continues to be a leader in the innovative use of information technology in both academic and administrative applications. Over the past three years we have made significant investments in renewing our information technology infrastructure. In addition, key business systems have been migrated from proprietary systems based on old technology to current generation marketplace based systems. A brief description of key information systems initiatives follows.

SUPPORT FOR NEW PARADIGMS IN RESEARCH AND EDUCATION

In 1994, President Casper appointed a Commission on Technology in Teaching and Learning (CTTL). Recommendations of CTTL have resulted in creation of innovative programs such as the Stanford Learning Lab (SLL), the Academic Technology Specialist (ATS) program, and the expansion of the mission of the Stanford Center for Professional Development. SLL develops and deploys pedagogically informed learning technologies such as the freshman course, *Introduction to the Humanities: The Word and the World*. ATS originated as an experimental initiative to assist faculty in the use of technology in teaching, learning, and research. Because of the success of this program, it is being expanded to twice its current size with shared funding between Stanford University Libraries and Academic Information Resources (SUL/AIR) and the participating

schools and departments. These programs are resulting in increased use of technology in classroom and curriculum development and systematic evaluation of effectiveness of new forms of teaching and learning.

All of Stanford's approximately 9200 housed undergraduate and graduate students have a Stanford network connection in their dorm room. This year, 4800 of the possible 9200 students have subscribed to Residential Computing for access to the network and technical support. In addition, Residential Computing supports 72 computer clusters in the dorms, providing over 350 computers for dorm residents. The transfer of Residential Computing to SUL/AIR in 1997 provided the opportunity for academic-related organizational goals in addition to the technology and service goals of the organization. This has promoted better knowledge and support of library instructional programs and smoother linkage between classroom delivery of technology and the dorm computing environment. In addition, new projects, such as the teleconferencing reference pilot, are underway.

The success of these initiatives is dependent on the availability of a reliable, high-speed information network on campus and a high-speed Internet connection. Stanford has already replaced the campus backbone with a new backbone that provides a high degree of fault-tolerance. In addition, the Provost initiated a program to upgrade wiring in academic buildings to ensure that these academic initiatives have the required networking resources in the classroom, in the office, and in the residences when and where they are needed. Stanford has also initiated a pilot program to connect international centers to the main campus. Stanford centers in Berlin and Kyoto are participating in this program.

Stanford's participation in CalREN2, the California portion of the nationwide Internet2 project, will provide researchers with inter-institutional network capacity two orders

of magnitude greater than current technologies. Greatly improved collaborations with colleagues at other institutions through video conferencing and high-speed transmission of large data-sets, high-resolution images and multi-media interactions, high-speed access to distributed digital libraries and better utilization of super computer centers are just a few of the ways in which the project will benefit the research activities of the faculty.

MIGRATE ADMINISTRATIVE SYSTEMS TO CURRENT GENERATION, MARKETPLACE TECHNOLOGIES

This marks the fifth year of a multi-year initiative to replace Stanford's proprietary software with marketplace information systems and to improve the information technology infrastructure required to support the instruction, research, and business activities of the University.

Originally estimated to be completed in five years at a total cost of approximately \$60 million, experience to date has shown that the work necessary to accomplish this migration from proprietary to marketplace information systems is much more extensive than projected five years ago. Stanford has included upgrades of the business information systems in the long-term capital plan.

Significant progress has been made against this plan including implementing systems for identification cards, indirect costs, investment accounting, financial aid, consolidated budget, student access, department expenditure management, capital asset management, and development. By the end of 1998/99 Core Financials I (chart of accounts, general ledger), Core Financials II (purchasing/payables/receivables), and Environmental Health & Safety systems are slated to be implemented.

Beyond this timeframe, projects will be initiated for student information systems, human resources, research administration, and spatial information. Upon completion of this final set of projects and migration of a number of

departmental information systems, the University will have successfully migrated Stanford's business information systems from a proprietary, home-grown mainframe environment to an open, marketplace, client/server environment. Our objective is to build the capacity into the budget for an annual increment of \$5.0 million in systems work. Depending upon funding and availability of marketplace solutions, the process of converting the existing proprietary systems could take as long as 10 years.

BUILD COMMON INFRASTRUCTURE TO SUPPORT INSTRUCTION, RESEARCH AND BUSINESS ACTIVITIES

The information systems initiatives which support the academic and administrative activities of the University all require common infrastructure services such as network namespace services, database services, file services, web services, email services, authentication services, and security services. Business applications need common application services for workflow, authority, common reporting, data integration, and desktop integration.

Initiatives are underway in many of these critical service areas. Oracle Corporation is providing our common database service. Authentication and single system sign-on is being provided by Kerberos and extended to desktops through the PC Leland/Mac Leland and the WebAuth projects. The Person Registry project will provide the base of reliable demographic information on people currently provided by WhoIS and will extend access to this information to other information systems.

PROVIDE LOCATION INDEPENDENT, SECURE ACCESS TO INFORMATION RESOURCES

People at Stanford are very mobile in their work, moving from office to classroom to conference room to residences to clinics. And, they want to take their computing with them as they move from location to location. This is difficult in the current networking environment as computers must be reconfigured to work with a different

network address at each new location. Implementing Dynamic Host Configuration Protocol will allow faculty to prepare network dependent course materials on a laptop in their office then plug the laptop into the network in the classroom without needed reconfiguration. Administrators will be able to prepare and present materials easily, regardless of location. This will remove one of the barriers to creating and sharing information across the University.

SCHOOL-BASED PLANS AND INITIATIVES

School of Earth Sciences

Significant faculty development is underway in the School of Earth Sciences. New hires include a senior expert in ocean processes recruited as part of the Ocean Margins Initiative; a senior expert in biogeochemical cycling in forest and agricultural ecosystems; a young specialist in chemical and isotopic analyses; and a specialist in mathematical simulation of fluid flow in oil and gas reservoirs. Searches are underway for a soil scientist and a geostatistician for the Ocean Margins Initiative.

New faculty appointments enhance the undergraduate program in Geological and Environmental Sciences through courses that link geological processes with environmental science and add coverage of oceans and environment to the Earth Systems Program. These appointments will help attract top-quality graduate students and will also create opportunities for links with the Biological Sciences, Civil Engineering, and the Institute for International Studies as well as with the U.S. Geological Survey and the Monterey Bay Aquarium Research Institute.

The Earth Systems Program, which is very successful in attracting undergraduates to the School, has added an energy track. Most of the funding for the program has come from an external grant, which was recently renewed for three years. The School and the Provost have committed to fund a portion of operating costs,

and endowment support of the program is a fundraising priority.

The School is now working to provide high-quality laboratory space for new faculty. The President's Fund provided funding for renovation of lab space in Green Earth Sciences for faculty joining the School this year. Space for new faculty next year will come from reorganization and refurbishment of space in the Mitchell Building.

A major new scientific capability is the Sensitive High-Resolution Ion Microprobe (SHRIMP) which will give Stanford a technological edge in the area of geochronology (the measurement of the age of mineral samples). The purchase and operation of the instrument is a joint venture with the U.S. Geological Survey. The USGS has also relocated a thermal ionization mass spectrometer at Stanford, which will be operated as part of the new ion probe facility. Along with light isotope analytical capability developed for a new faculty member, the School has a significantly improved capacity for isotope analysis in the science of the Earth.

The School continues to maintain a healthy financial position. External support comes from federal grants and contracts (primarily DOE and NSF), 50%; industry (mostly through the many companies that participate in affiliates programs), 30%; and gifts and other grants, 20%. Although the School is as vulnerable as any to potential reductions in federal support, the outlook is good for stable funding from its principal sources. There is also evidence for substantially improved job markets in industry for Earth Sciences graduates.

The School of Education

Anticipating that 40% of the School's faculty will be replaced over the next five years, an aggressive recruitment effort is underway. The School's recruitment plan addresses the academic needs of the school and balances theory and practice as well as discipline-trained and professional-school trained scholarship. Fields

for searches include higher education, education leadership, mathematics education, English education, organizational theory, and a “cluster” search in social diversity and common values, calling upon historians, philosophers, or sociologists.

The School launched the Program in Learning, Design & Technology in 1997/98 in recognition that information technology can revolutionize education. This program will maximize the benefits of new information technologies in teaching and the creation of new learning environments.

The new Center on Adolescence promotes interdisciplinary research, provides training of young investigators, and advises government institutions on policy related to adolescents. Its goal is to promote the competence, character, and well-being of today’s adolescents through systematic scholarship on youth development and guidance for improved educational practice in schools and other community settings. The Center brings together researchers from throughout the University and from affiliated organizations outside of Stanford.

In 1998/99 the School will embark on a Focus on Communities and Youth initiative to study how to create teaching-learning environments that maximize educational benefits for culturally, ethnically, linguistically, and economically diverse students. Involving urban and rural communities across the country, the center will offer programs in community leadership, support community research partnerships, and serve as a national resource in higher education for policy makers, researchers, and other practitioners who work with and on behalf of children and youth.

Redesign of the Stanford Teacher Education Program will include possible curricular and structural changes as well as reflect changes in California teacher certification requirements. The program will also incorporate a network of professional development schools into teacher preparation. These schools will serve as the

primary training site for students in the Stanford Teacher Education Program and for professional development of other teachers, especially those involved in local reform initiatives.

The School will attempt to maintain basic infrastructure needs while upgrading its two buildings to create technology-intensive classrooms and laboratories for academic programs and research. In the summer of 1997 the School embarked on a modest renovation of the School of Education building and in the coming year a technology classroom and video lab facilities will be created in the CERAS building.

School of Engineering

A year ago, as part of Dean Hennessey’s first year as dean, the School’s academic planning exercise resulted in a comprehensive plan for all nine departments that became the framework for the School’s activities this past year.

Objectives include insuring the continued strength of its strongest programs in the face of anticipated major retirements, carefully studying its smaller departments to determine their most promising strategies, and reallocating faculty and program resources to reflect changing disciplines and developing student interests. Critical to the success of these endeavors is the School’s ability to attract and retain the very best faculty, to provide them with functional and safe laboratory facilities, and to maintain a supportive academic and administrative environment.

Over the next several years, nearly thirty retirements will affect many of the school’s strongest programs. Increased rates of hiring will result in both opportunities and challenges. Many of the key challenges will be financial ones, and the School is preparing for them in a variety of ways. Current and recent searches are in the areas of wireless communications, microfabrication technology, cryptography, artificial intelligence, biomechanical engineering, micromechanics, analytical methods of design, environmental biotechnology, and high performance computing.

There are several new program areas under analysis. A committee of faculty is developing plans for the School's program that will create greater opportunities for interdisciplinary courses and research, increase the external visibility of teaching and research in this area, and enable pursuit of unique funding opportunities. In addition, the School views the area of biotechnology as offering significant opportunities for expansion of both teaching and research programs at the undergraduate and graduate levels.

During each of the past two years, incremental base budget money has supplemented the University's salary program to strengthen the School's competitive salary position in relation to other schools. However, the School continues to be concerned about its relative position and the degree to which its academic strength can be challenged by competitive offers. The realities of escalating housing prices in the Bay Area are a major issue for the successful recruitment and retention of faculty. The School has been able to meet individual retention challenges, but must remain diligent in exploring ways to provide support to faculty for housing.

During the 1993-1997 period, the School contributed \$52 million toward the improvement of its laboratory facilities. Other than short-term debt to support two outstanding pledges, the commitments to these building and renovations have been met. After raising nearly \$40 million toward these projects, School reserves were left to support the last \$9.5 million. The last of these transfers took place in Fall 1997.

State-of-the-art research facilities are a critical element in the recruitment and retention of the very best faculty and students. Engineering has made large investments over the past decade to insure the quality of its research facilities. New construction, additions, and seismic strengthening projects have created nine new or renovated facilities. However, major laboratory issues with major programmatic implications are still being addressed.

School of Humanities and Sciences

1998/99 will be a year of transition as the School of Humanities and Sciences welcomes a new Dean and an Associate Dean for the Social Sciences. A newly created staff position of Chief Administrative Officer will oversee the School's finance, facilities, and human resource functions.

H&S will continue to seek perspectives from outside Stanford to assess the quality of its faculty, students and curriculum. External visiting committees will come to campus to review the departments of Applied Physics, Art, Classics, Philosophy, Physics, and Sociology. The H&S Curriculum Committee, which serves as the overseer for all reviews of interdisciplinary degree programs, will examine African and Afro-American Studies, East Asian Studies, Human Biology, and Individually Designed Majors.

Over the last two years, H&S has been successful in recruiting a number of internationally renowned scholars, which is particularly impressive given the keen competition for these top academicians and the local housing market. An anticipated 25-30% of the searches in 1998/99 will be authorized at the senior level. In addition, the School's strong commitment to faculty renewal will continue as departments seek out the nation's top junior faculty who represent the next generation of distinguished researchers and teachers. Appointment and promotion efforts will be aided significantly through the major revision and wide distribution of the School's most important policy document, now called the "H&S Faculty Handbook," which will assist departments in navigating the appointments and promotions processes.

A survey conducted by H&S last year revealed that while Stanford's sabbatical plan is competitive at the associate and full professor ranks, it was not competitive at the junior level. To remedy this situation, beginning in 1998/99, H&S will supplement the University sabbatical plan by providing additional replacement

teaching funds to departments so as to release fifth or sixth year assistant professors of half of their teaching responsibilities for one year. By combining this with accumulated sabbatical, each faculty member will be provided with a full year of research time prior to tenure review.

In the autumn of 1997, President Casper established a \$12.0 million endowment to add four incremental professorships in the humanities and arts. One of the primary goals in 1998/99 is the successful recruitment of a group of outstanding scholars to fill these prestigious professorships. Several other complementary efforts to strengthen the humanities will continue, including targeted fundraising for graduate fellowships and a writers- and artists-in-residence program.

Finally, H&S will celebrate its 50th anniversary through a series of academic conferences that will each have at least one event that is accessible to a public audience. Activities will range from a conference on the history of Congress organized by the Social Science History Institute to a production of "The Threepenny Opera," co-sponsored by the Departments of Music and Drama to a symposium on "Museums, Universities, and Biodiversity in the 21st Century," co-sponsored by the Center for Evolutionary Studies and the California Academy of Sciences.

School of Law

As of April 1998, with one and a half years remaining, the School has secured gifts and pledges of \$65 million toward its upwardly revised Campaign goal of \$75 million.

Thanks to expendable as well as endowment gifts, the Law School is back in the market for new faculty and has begun to close the gap in faculty salaries. The School appointed three new faculty members in 1997 and will appoint at least three more in 1998. Barring an extraordinary increase in faculty compensation at peer institutions, and assuming that the School achieves its Campaign goal, Stanford faculty salaries should be fairly competitive.

Inspired by alumni support and the success of the Campaign to date, the Law School has begun an ambitious planning process based on two premises: first that the legal profession is in trouble, both internally and in the public's perception, and that Stanford Law School has an obligation to improve the profession; second, that many graduates pursue careers that go beyond law practice to encompass a range of activities in business, government, and other forms of public service. Accordingly, a Task Force on the Mission of Stanford Law School has begun to ask two questions: What can Stanford do to help restore the legal profession's traditions of ethics, civility, and public service? And how can the School better prepare students for careers they are likely to pursue?

A gift by Joseph Gould has enabled the School to repair the former Huston House, which was damaged in the Loma Prieta earthquake, and use it as a center for dispute resolution programs. A grant from the Wayne and Gladys Valley Foundation will enable the School to convert the Law Library's bibliographic area to an electronic information center and upgrade a large classroom for multimedia uses.

Stanford Law School offers an innovative executive education program that builds on the School's academic excellence and the University's multidisciplinary resources. Stanford's unique executive education centers on the intersection of law, business, and policy and includes Directors' College, General Counsel Institute, and the Technology and Business Strategy Summit.

Vice Provost and Dean of Research and Graduate Policy

The Office of the Vice Provost and Dean of Research and Graduate Policy supports Stanford's research and graduate education programs through policy development and interpretation, manages the Office of Technology Licensing which directly supports researchers, and is the cognizant Dean's Office for eight Independent Laboratories, Centers, and Institutes.

A key focus of the Office has been the establishment of the Stanford Graduate Fellowship Program. Over 120 outstanding graduate students in science, engineering, and the social sciences began their fellowships in the 1997/98 academic year. In addition, the program raises the stipend of students who come to Stanford with three-year National Science Foundation or similar grants. Of the students chosen as Stanford Graduate Fellows, 24 also earned national grants and are honored as joint fellows. During the current nomination cycle for students entering graduate work in 1998/99, the quality of students is equally extraordinary. The Office of Development is enthusiastically raising endowment funds in support of the program, in the hope that it will be fully funded by September 1, 1999.

With the success of the Graduate Fellowship program already evident, we turn our attention to fostering opportunities for undergraduate involvement in research. In Spring 1998, a small experimental program will support four departments to provide incentives for faculty and undergraduate students to work together. Each department has different needs ranging from support of safety training to minor room remodeling. In 1998/99, other departments interested in this program will be invited to propose their plans to involve undergraduates in research. The program will be evaluated towards the end of the year, and if it has been successful, we will undertake fund-raising efforts to provide long-term permanent support for the program.

In the principal science and engineering independent labs there will be several important programmatic changes in 1998/99. The Center for Materials Research (CMR) will move back into a newly renovated McCullough Building. That building, along with the new laboratory Annex beside it, will house the faculty, staff, students, and facilities of the Laboratory for Advanced Materials. Faculty from two schools and seven departments will create a multi-disciplinary center to make novel materials,

characterize them, and study their properties or applications repeatedly until their scientific secrets are revealed or their utility successfully demonstrated. The current CMR program, a NSF Materials Research Science and Engineering Center, will be a part of the new center and will provide essential facilities support and research funding for the broader materials community as well. The W. W. Hansen Experimental Physics Laboratory (HEPL) and the E. L. Ginzton Laboratory each have new directors energetically working with the faculty to ensure continued programmatic strength.

The humanities and social sciences centers and institutes continue to provide a vital role, both internal and external to Stanford. The Stanford Humanities Center (SHC) is a recent recipient of a challenge grant from the National Endowment for the Humanities, and the Office of Development is working to find required matching funds. The Mellon Foundation is continuing its strong support of the workshop program, and we are working actively to find long-term funding for this popular program. Applications to SHC's external fellowship program have increased 70% for the second year in a row, a sure sign of the Center's excellent national reputation for scholarship and innovation. We hope to be able to introduce a modest post-doctoral fellowship program to enhance the fellowship mix at the Center with funds related to the NEH Challenge Grant.

The Institute for International Studies (IIS) is now a mature organization with a well-established program. The success of three new initiatives in 1997/98 and the addition of two new initiatives in 1998/99 demonstrate its vitality. The new Health Policy Center will be administered in an imaginative cooperative arrangement with the School of Medicine. The Bechtel Initiative on Global Growth and Change will ensure a continuing stream of new research ideas into IIS, to facilitate new faculty collaborations, and to build new partnerships outside the University in both the business and policy-making communities. Construction is

underway to make Encina Hall East, plus parts of Encina Hall Central, a new home for all of IIS, which is currently located in seven different campus locations.

The Center for Economic Policy Research (CEPR) has been given authority to make senior fellow appointments. These appointments to the Academic Council will provide CEPR with a larger group of senior scholars with diverse interests to be part of new centers within CEPR or as part of the larger CEPR research program as a whole.

The Center for the Study of Language and Information (CSLI) is in a transition period, examining the integration of its traditional focus on cognitive science with new roles in media issues related to human-computer interaction. In the course of building up its Industrial Affiliates program, CSLI is investing in areas which are attractive to both the Stanford faculty and to industry. The Education Program for Gifted Youth and the English Resource Grammar On-line program as part of the Cognitive Science Center, are very strong, and there are several new ventures underway.

The Institute for Research on Women and Gender also has a new director, who is pursuing new initiatives to stimulate faculty involvement in the Institute as well as interdisciplinary research and curriculum development. Her first efforts center around a collaborative effort with the Center for Comparative Studies in Race and Ethnicity and the Feminist Studies Program which has resulted in a proposal submitted to the Ford Foundation.

Graduate School of Business

The goal of the Graduate School of Business is to be the leading academic school of management in the world in its impact on management theory, thinking, practice, and performance. The School's strategy to achieve this goal is to pursue significance, managerial relevance, excellence, and scholarly rigor in its research and teaching programs. In recent years, the GSB has supple-

mented its long-standing commitment to fundamental research with a renewed commitment to influencing the practice of management through intensive dissemination of new research to managers and through executive education and the education of both potential young managers and young scholars who will lead management education in the future.

Over the next few years, the School's research and educational agenda must deal with the globalization of markets and organizations, which will require faculty development and collaboration with other parts of the University, with companies, and with other schools of business in the U.S. and abroad. The School contributes to the University community through joint ventures with the School of Engineering, the Computer Industry Project, and the Stanford Center for Conflict and Negotiation, involvement in joint degree programs, joint faculty appointments, and service teaching.

Looking ahead, the School plans to increase Executive Education capacity by developing new public and custom programs. Subject to final approval of the Provost, the School's plans call for an increase in the number of faculty to 95-100 and a small increase in the number of doctoral students in each entering class. The MBA and Sloan programs will stay at approximately the current levels of 360 and 47 students per class, respectively.

The budget for 1998/99 reflects the following priorities:

- Complete the Littlefield Management Center addition, which will add offices for faculty, the Dean's office, and emeritus faculty and integrate the two GSB buildings.
- Complete the implementation of a school-wide "intranet" that includes communication with such constituencies as alumni/ae and applicants.
- Continue to develop 2-3 additional weeks of Executive Education programs per year,

building on areas of faculty research of interest to practitioners. This requires additional faculty, a program development strategy drawing on the interests of a wide range of faculty, and preparation and encouragement of faculty to participate in executive teaching.

- Continue investments in classroom technology, equipping most classrooms with network connections, computer projection, and related infrastructure by 1998/99. Space available for student use of technology will increase with relocation of the behavioral research laboratory to the basement of Littlefield.
- Implement a plan to improve the appearance and efficiency of public and office areas to keep the building attractive and useful for at least the next 5-10 years, pending decisions about the future of existing and new facilities.
- Undertake a fundraising effort to prepare for the School's 75th anniversary in 2000, raising funds for faculty support, research and teaching initiatives, and technology.

The current estimate is that 1998/99 operations (before providing for facilities reserves and investment in major facilities projects) will approximately break even, which is accounted for by the net addition of faculty and the investment in the intranet. The second installment of gift funding for the Littlefield addition is expected in 1998/99; general gifts and reserves will be provided temporarily to complete the project in 1998/99. Funds will be sought to renovate the GSB building, with the expectation that pledges will be paid over five years and project funds advanced by general gifts and reserves.

School of Medicine

The School of Medicine has undertaken a number of major initiatives in recent years to maintain world class excellence in education, biomedical research and innovative clinical care,

and to respond to the opportunities and challenges of the changing scientific and economic environment.

Recruiting and retaining high quality faculty is critical to the School's ability to realize its goals. This year, the School recruited chairs in the departments of Ophthalmology and Neurology and Neurological Sciences. In the coming year, the School plans to complete recruitment of new chairs to lead the departments of Surgery, Pathology, and Anesthesia. Investments in these departments will continue for several years as the new chairs recruit faculty and build programs. Housing costs are a serious problem in recruiting high quality faculty, but the School worked successfully with the Faculty and Staff Housing Office to develop attractive housing assistance packages.

The School's research performance was strong in 1996/97 with 14% growth in direct research expenditures, and projected direct research expenditures for 1997/98 are an additional 10% higher. The numbers and amounts of faculty grant awards continue to increase and research expenditures are expected to remain strong for 1998/99. Space to accommodate growing research activities is a major planning focus. The Center for Clinical Sciences Research (CCSR) should be occupied by the beginning of 1999/00. The School has leased additional laboratory space near the Palo Alto Veterans' Administration Medical Center for expansion of the Human Genome Project and to accommodate faculty in several departments. The financial costs of leasing off campus space are high as are the intellectual costs of the lack of proximity of faculty and research space to other School activities.

Early in this fiscal year, the Accreditation Team of the Liaison Committee on Medical Education visited the School as part of the national accreditation review. The School's accreditation was renewed for seven years but the Team made recommendations regarding facilities, including the quality and amount of library space, study

space for students, and the quality of classroom space and equipment.

The Veterinary Service Center was also reviewed this year by the Association for Assessment and Accreditation of Laboratory Animal Care and accreditation was renewed. A faculty task force is studying the costs of providing care for laboratory animals essential for research activities. The School expects to increase its subsidy for animal care and reduce charges to investigators.

This year the School has attempted to integrate capital expenditure planning with the annual Consolidated Plan and to carry both the Consolidated Plan and the Capital Plan out several years into the future. The result will be a more comprehensive picture of potential expenditures and a better base for prioritizing projects. For 1998/99, the School projects capital expenditures, shown as transfers to Plant, of approximately \$24.8 million. This includes improvements to student labs and classrooms at \$4.3 million, seismic stabilization of the Edwards building at \$2.8 million, commitments to chairs at \$2.9 million, and projects related to CCSR relocations of \$1.9 million. Departmental investments in plant projects will total approximately \$4 million. The School also projects a cost of \$2.4 million to upgrade networks to meet new University standards and \$2.0 million for planned maintenance projects.

The merger of UCSF clinical activities and Stanford Health Services to form UCSF/Stanford Health Care was finalized on November 1, 1997. The School and its clinical departments are committed to the new venture's success and are working to resolve issues related to merging two very different clinical practices in ways that protect and enhance the mission of each. In 1998/99 the flows of funds among UCSF/Stanford Health Care, clinical departments, and the School will remain largely unchanged, however the development of new financial plans must take into account the School's goals for education and expansion of clinical knowledge. While each entity has an obligation for fiscal

responsibility, decisions regarding services that have been shared and benefited the enterprise as a whole should not be made unilaterally or without understanding the impact of potential changes on each institution.

The School has pressing needs to develop and enhance existing programs and to satisfy commitments to departments. While fortunate to have a growing research enterprise and appropriate reserves, the School will need to spend some accumulated reserves over the next several years to meet such needs as upgrading its aging facilities. The School's leadership has initiated several programs to develop and evaluate its plans and priorities.

Hoover Institution

Due to successful fund raising and continued cost containment, the Hoover Institution finished 1996/97 with a budgetary surplus of \$2.7 million; the Institution projects a balanced position in 1998/99. The 1998/99 budget reflects significant real growth for the first time in this decade.

The Institution's five-year \$75 million fund raising campaign, which runs through the year 2000, has produced early positive results assuring that the 1998/99 budget will be in balance. In the five years ending with 1996/97, gifts raised for expendable purposes grew, on average, by 35% annually, while expenditures grew by only 3% annually.

The University's annual contribution of approximately \$4 million is used to support the Hoover Library and Archives. Nearly 20% of the proceeds for new initiatives from the Campaign is for new Library and Archives projects.

The Hoover Library and Archives maintains an active collecting program on political, economic, and social change. Several initiatives will strengthen the collecting program, enhance access for users, and contribute to the preservation of the collections. Collecting initiatives are focused on three themes:

- Transition to Democracy and Economic Freedom in former communist countries, in evolving communist countries, and in countries throughout Latin America and Africa
- Soviet Union in the Twentieth Century: From Revolution to the End of the Cold War
- Middle East in Transition: Documenting the Clash of Civilizations

Access to the collections will be enhanced by cataloging the flood of newly acquired materials, using new technologies to deliver information to a wider audience, and encouraging their use through research and publication grants.

The strength of the Library and Archives is its special collections of archives, manuscripts, pamphlets, and other materials. They come from the back alleys of revolutionary change and the streets of political action in far corners of the world. The Library and Archives are focusing their energies and resources on these special collections.

The Institution's research programs will be expanded with the appointment of the first two of six new resident fellows in the coming year. With additional campaign funding, the Institution plans to complement existing resident fellows with affiliated part-year fellows in residence, augment the support of resident fellows to undertake institutional projects, and enhance dissemination of the scholars' research via symposia, seminars, and publications.

Under the umbrella of the Institution's three major programs (American Institutions and Economic Performance, Democracy and Free Markets, and International Rivalries and Global Cooperation), Hoover resident and affiliated fellows will participate in a number of institutional projects on topics such as economic growth and capital formation, education reform, environmental policy, intellectual property and intellectual capital, Latin American economics and politics, peace and security in Europe, and the threat of biological and chemical weapons.

The Hoover Institution plans to expand marketing of its two successful outreach activities, the *Hoover Digest: Research and Opinion on Public Policy* (the Institution's quarterly journal) and *Uncommon Knowledge* (its weekly half-hour public affairs program). The 1998/99 marketing goals for the *Hoover Digest* are to increase its paid subscription base and to expand circulation among politicians, the media, and researchers at other universities and research centers. *Uncommon Knowledge*, a series of half-hour discussions of policy formation featuring Hoover fellows, Stanford faculty, and other policy experts, is carried by more than eighty public television stations. In 1998/99, efforts will be made to expand distribution further and to find additional sponsors to underwrite production costs.

Stanford University Libraries and Academic Information Resources

The most significant development in the Libraries during 1998/99 will likely be the reoccupation of the Green Library West building, which was severely damaged and evacuated following the Loma Prieta earthquake in 1989. The 10-year anniversary of the worst quake to hit Northern California since 1906 will see the completion of a remodeled, redecorated, and greatly strengthened main library facility for research services and collections.

The completion of the Green Library West reconstruction project will enable the Library to implement a new program of subject-area based research services with supporting collections shelved nearby. Unfortunately, the seismic strengthening of the building structure has reduced its shelving capacity. New life safety sprinkler code requirements in the Green Library East building will reduce its shelving capacity as well.

At the same time, Stanford will continue its tradition of collection building with an increase of 4% to the base general fund collection budget. Such an increase falls well short of the rate of inflation in the publishing industry, which will exceed 10% in 1998/99. The

scholarly community at Stanford will need to make some hard decisions about collection development, especially the continuation of expensive serial titles.

A continued strong dollar will aid the purchase of non-US materials and help counter the high rate of inflation in publishing, so that Stanford may once again add about 120,000 volume equivalents to its collection. At the rate of 10 volume equivalents per linear foot of shelving, this means the Library will require about 12,000 linear feet of new shelving in 1998/99, or about 2 miles. This is a fairly typical annual requirement. Combined with the loss of capacity in Green Library (both East and West), and given the crowded conditions in the existing stacks, this means that Stanford will need to acquire, lease or build a new storage facility for library collections in three years or less.

The digitization of print collections is sometimes mentioned as a solution to the problem of collections space. This might be true in the event that the Libraries purchased most or all of the materials from the publisher in digital format. But only a tiny fraction of the published output of interest to the Stanford community is now available in electronic format. The rest is available only in hard copy, and is prohibitively expensive to convert to electronic format, as compared with simply building a new facility to house the printed material.

Work continues on the development of the Library's Technical Processing system, purchased from Sirsi Corporation in 1996/97. The system will cost approximately \$6 million, amortized over a five year period.

The Academic Technology Specialist program will continue into 1998/99 with the same level of general fund support as in 1997/98 (\$400,000). However, of that amount, the Provost has authorized the conversion of \$150,000 to base funds and has also authorized an expansion of the program using 50/50 cost sharing with the schools.

SLAC

SLAC projects a budget of \$171.8 million, based on the FY98 President's Budget submitted to Congress.

1997/98 is the last year of the construction of the PEP-II B Factory project of the high energy physics program. Construction activities will be completed in the late spring of 1998 and commissioning will begin in July 1998. The associated B-meson particle detector (BaBar detector) project, a collaboration of 70 institutions in nine countries, will complete the fabrication in early 1999. The BaBar detector will then be installed on the PEP-II beam line and be ready to begin the B physics program three to six months later.

Another important element in the high energy physics program is an extensive effort aimed at the eventual construction of a large electron-positron linear collider which will allow unique experimental investigations at the TeV energy scale. Given the 1998/99 President's Budget as submitted to Congress, there will be a substantial growth in the large electron-positron linear collider research and development program which is carried out in close collaboration with SLAC's sister lab KEK, Japan's National Laboratory for High Energy Physics.

A relatively new direction for SLAC's high energy physics program is a move into space research, in conjunction with the Physics Department and HEPL and in cooperation with NASA and several foreign laboratories. A proposal has been submitted to DOE for the GAMMA-ray Large Area Space Telescope (GLAST) experiment. In 1998/99, the SLAC effort will focus on the research and development for a state-of-the-art high energy gamma-ray detector for space.

Operations of SLAC Positron-Electron Asynchronous Ring (SPEAR) for users is planned for about nine months, similar to 1997/98. Various new experimental stations at SPEAR are currently under fabrication. A new beam line, the molecular environmental science beam line, is

scheduled to be commissioned in 1999 with a new side station for protein crystallography. An existing experimental station is being modified for deep etch lithography for micromechanical systems.

Incremental funding has been requested from DOE for two major initiatives of the Stanford Synchrotron radiation Lab (SSRL). The first is for a significant effort in 1998/99 associated with a major upgrade of the SPEAR facility called "SPEAR 3", a \$45 million project proposed to begin in 1999/00. The SPEAR3 upgrade will increase the brightness of the

synchrotron radiation beam for the experimenters at SSRL.

The second major initiative of SSRL is the research and development program for an x-ray free-electron laser called the Linear Acceleration Coherent Light Source (LCLS) which utilizes a part of the linear accelerator. A substantial increase in funding for the R&D program is being sought in 1998/99 and 1999/00 to support the U.S.-based collaborating institutions which include SLAC, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and the University of California at Los Angeles.

