



## WASC PREPARATORY REVIEW INTRODUCTION



*"UC Santa Cruz has created a unique environment of intensity and innovation where synergy between research and teaching provides unparalleled opportunities for people who drive intellectual, social, cultural and economic progress."*

Lipman Hearne Report, 2003

The University of California, Santa Cruz has grown significantly, both philosophically and physically, in its nearly 40-year history. It has evolved from being known as an educational experimenter to being recognized as one of the nation's rising universities (Graham, Diamond, 1997<sup>1</sup>). While the campus has matured and taken its place among the top 25 public research universities, its faculty and staff remain passionate about its mission and purpose. We are also continually reflective and constructively critical about how well the campus is achieving its educational objectives, and about the strategies we have developed to meet those objectives.

As we commence the WASC accreditation process, the campus has just completed an extensive long-range planning effort. UCSC is now engaged in three campus-wide initiatives: transforming campus business practices and strategic planning; planning for the campus's long-range physical development; and strategic communications. For UC Santa Cruz, WASC is not just a process in itself, but it has been integrated into existing processes. Seeking renewed accreditation provides us with an opportunity to consider, in the context of WASC standards, the key goals that were the basis for the planning process and the effectiveness with which we have met them. The campus is also using this opportunity to help us address what UCSC needs to do to advance into the highest ranks of American Universities.

In the first reflective essay, we demonstrate UCSC's consistency in institutional purposes and values. These values are shared widely, as evidenced by leadership statements, and they are confirmed in the Millennium Committee report. We provide a brief chronological story of the campus's development, from the founding years to the many improvements in the last two decades. Throughout this period of physical expansion and intellectual/educational growth, we have maintained the highest standards of integrity. UCSC stands firmly committed to academic freedom, diversity, and the principles upon which the academic community was founded. Our core values are anchored in our shared vision – to become an outstanding public research university with an uncommon commitment to education at all levels.

In Essay 2 we show how UCSC achieves its educational objectives through the core functions of teaching and learning, scholarship and creative activity, and support for student learning. Research and other creative work is integral to UCSC teaching and learning, both at the graduate and undergraduate level. From their attendance at Freshman Discovery Seminars to authoring published research papers and producing works of art, our undergraduate students engage in discovery and creation of new knowledge.

Our graduate students are vital to the education of our undergraduates. By inspiring young scholars in the undergraduate classroom and laboratory, they enhance the quality of the undergraduate experience. Because of this contribution, and because of the economic need for more graduate students in our knowledge-based economy, we are increasing their numbers and are adding new disciplinary and interdisciplinary graduate programs. We continue to seek ways to improve the quality of graduate

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<sup>1</sup> Graham, H. D. and Diamond, N. 1997. *The Rise of American Research Universities. Elites and Challengers in the Postwar Era.* Johns Hopkins University Press, 319 pp.

education and the quality of life for graduate students.

The holistic development of our students is underpinned and encouraged by exceptional interaction between academic advising, student assessment and general education. A dual system of residential colleges and academic departments facilitates students' move from high school or community colleges into the university – the system engages students in a supportive manner, providing more individual learning and social support than a large campus might do otherwise. A wide range of learning support services and mechanisms for intervention to ensure students' success have resulted in improvements in our retention rates. UCSC encourages, supports, and rewards excellence in teaching.

The eleven standards to be addressed in Essay 3 comprise quite disparate elements. We have attempted, however, to connect the elements in a way that creates a coherent story. UC Santa Cruz has developed and applied a wide array of resources and organizational structures to ensure its sustainability. Through investment in human, physical, fiscal, and information resources, and through an effective set of organizational and decision-making structures, UCSC continually strives to achieve its educational objectives. We have developed an intellectual environment that attracts and inspires the best faculty and undergraduate students and also attracts first-rate graduate students and postdoctoral fellows. UCSC has exceptional strength in its culture of diversity, creativity and discovery.

In the final essay, we indicate how shared governance and decision-making are informed by both quantitative and qualitative data. The institution makes creative and informed use of these data for continuing assessment, evaluation and accountability. The means of collection and use of these data has been overhauled dramatically in the past five years. Evidence of UCSC's commitment to excellence is shown by constant conduct of program reviews. The assessment and reports of students' progress is now managed significantly differently since the last WASC review: it is more rigorous and delivers data that can be analyzed and applied more easily. We have

also risen well to the challenge of ever shifting and overall declining state budget allocations.

We are proud of the story that these four essays tell. In less than four decades UC Santa Cruz has become known as an institution where "innovation is tradition". It has provided tremendous leadership at the national level with respect to developing and testing best practices in undergraduate education. Its graduate students are working side by side with undergraduates and with faculty as research colleagues, contributing to a myriad of advances including deciphering the human genome, designing telescopes that may eventually image the 'big-bang', studying the effects of global warming on life, creating micro-electronics that convert heat to power, forecasting future state water resources, addressing contemporary issues of justice, tolerance and community, improving K-12 education, and exploring the frontiers of visual expression.

In summary we have used these reflective essays to explore our strengths and weaknesses in an open and self-critical way. This openness is extended to welcoming the WASC committee members' input on how well we are performing our continual assessment. The opportunity afforded by the WASC accreditation process provides UC Santa Cruz with an unparalleled opportunity to determine what this university wants to accomplish during the next decade, how we intend to reach our goals, and how we will determine if we have done so. We are using this process to bring together university stakeholders to learn, to plan, and to determine how we might better assess our effectiveness as an educational institution. We welcome the scholars who will be participating in both our Preparatory and Educational Effectiveness Reviews, and will draw upon their expertise and advice to help us become even better.

## WASC Standard 1. Defining Institutional Purposes and Ensuring Educational Opportunities



*UC Santa Cruz defines its purposes and establishes educational objectives aligned with its purposes and character. It has a clear and conscious sense of its essential values and character, its distinctive elements, its place in the higher education community, and its relationship to society at large. Through its purposes and educational objectives, UCSC dedicates itself to higher learning, the search for truth, and the dissemination of knowledge. The campus functions with integrity and autonomy.*

Since its founding and the arrival of its first students UC Santa Cruz has adhered firmly to its defined purpose: to serve with distinction the research, teaching, and service mission of the University of California. UC Santa Cruz's educational objectives are listed below:

1. Preserve a liberal arts ethos at both undergraduate and graduate levels.
2. Foster a collaborative ethos in research, teaching, and service.
3. Foster an uncommon commitment within a major public research university to innovative graduate and professional education.
4. Foster an uncommon commitment to undergraduate education.
5. Become the preeminent educational institution in the Silicon Valley and Monterey areas as well as Santa Cruz.
6. Take advantage of the particular resources of the region, and work cooperatively with local and regional partners.
7. Achieve a size and diversity that will enable it to serve the UC mission with distinction.
8. Achieve a mixture of faculty, staff, and students that takes full advantage of the intellectual resources of a socially and culturally diverse state and nation.

There has been constancy in this purpose, which has been articulated clearly throughout UCSC's history, most recently in the Millennium Committee report (1998). Comparing the Millennium Committee's report, which was adopted by the Chancellor with the endorsement of the Academic Senate, to the campus's first Academic Plan we are struck by the congruity of the two documents. Clearly we have developed evolving strategies to meet these objectives, and to address the maturational processes of the institution. The effectiveness of these

strategies may be observed in the present state of the institution.

The Millennium Committee's report, and the subsequent update to the campus' Academic Plan, are the most recent examples of the campus's periodic examination of its institutional strategies which have taken place in individual units and around the whole campus. For example, since the early 1980s each academic program has been reviewed every 5 to 6 years by an external panel of distinguished scholars, and by several Academic Senate committees. These reviews focus on the productivity, quality, and reputation of the program's faculty, the quality of instruction and the coherence and rigor of the program's undergraduate and graduate curriculum and requirements. Achievements of undergraduate and graduate students are also reviewed, as well as the program's attention to student and faculty diversity; the adequacy of its staffing and facilities; the integrity of the program's mode of governance; the degree of faculty collegiality; the impact of the program on campus life, etc. Such reviews have weighed heavily in decisions regarding resource allocations and have proved essential in helping programs refine their emphases, establish hiring priorities, revise curriculum, and otherwise enhance quality and effectiveness.

We present below a brief history of the campus that offers representative examples of the consistency and self-awareness with which UCSC's faculty and administrators have articulated the campus's mission and educational objectives. They show the seriousness and effectiveness with which the campus has used critical self-evaluation to achieve those objectives.

## The Founding Years

When UCSC was founded in the early 1960s as part of the California's Master Plan to provide higher education to accommodate the rapid growth in the State's population and economy, it dedicated itself to becoming a full partner in the UC system. That mission – to achieve excellence in research, teaching, and public service – has been served with distinction. UCSC's initial academic plan responded to UC's commitment to provide access to all academically qualified undergraduates (i.e., the top one-eighth of California's high school graduates) and to generate, through its graduate programs, the scholars, teachers, innovators, professionals, and business and community leaders needed by the state and nation. The plan envisioned that the campus would grow to a student population of 27,500 by 1990: 15,500 undergraduates and 12,000 graduate and professional students.

UCSC's founding faculty and administrators took seriously then-UC President Clark Kerr's challenge to use this 'fresh start' to develop innovative strategies to serve the tripartite UC mission. In particular, the new campus determined to embed a liberal arts ethos and commitment to undergraduate education so firmly in the campus's culture that that ethos would remain strong as the campus gradually developed a full complement of graduate and professional programs. Accordingly, the campus leadership worked to recruit an initial faculty who, in addition to having great promise as scholars, were skilled teachers committed to working closely with undergraduate and graduate students.

The campus quickly developed a full spectrum of graduate programs in the natural sciences. In the social sciences, humanities, and arts, however, it initially developed only a limited number of innovative Ph.D. programs. For example, the interdisciplinary Ph.D. program in Literature brought together faculty, who normally would have been in separate English, German, Romance Languages, and Classics departments; and the Ph.D. program in History of Consciousness involved the collaboration of faculty from literature, philosophy, history, art studies, sociology, anthropology, and political philosophy.

By keeping the number of students in individual graduate programs small, the campus ensured

graduate students would develop close working relations with the program faculty. This strategy also enabled faculty to spend more time working on advanced projects with undergraduates. Many undergraduates were given opportunities to undertake original research under faculty direction. In order to focus undergraduates' attention on the quality of their learning experience (rather than on striving for a grade) the Academic Senate voted to eschew letter grades and, instead, to combine a Pass-No Record system with written performance evaluations<sup>1</sup> for every student in every discipline. Key to the evaluation system was the requirement that each undergraduate, at the end of their senior year, should satisfy a 'capstone' exit requirement in their major. The major-sponsoring 'boards of studies' experimented with various forms of exit experiences. Some administered comprehensive written examinations; some developed 'oral comps' involving two or three faculty examining a graduating senior. A number of majors required a senior thesis, an extended research-based (or, in the Arts, creative) project generated under the direction of a faculty member.

Establishing a residential college system was a further major innovative strategy for fostering a liberal arts ethos, integrating interdisciplinary with disciplinary work, facilitating close student-faculty interaction, and enabling the campus to feel small while growing large. Although they have changed in a number of respects, colleges continue to function as a 'transition home' to students from their leaving high school to university graduation; they are essential in the metamorphosis of undergraduates, both intellectually and psychosocially. The colleges provide a flexible arena for interdisciplinary thinking and scholarship, as well as simulating a family comprised of cohorts and faculty members. Colleges function as social, cultural and volunteerism centers, and are a major focus for alumni and peer reunions.

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<sup>1</sup> Known prior to 2001 as the "narrative evaluation system."

## The Past Two Decades

A doubling of the student body and faculty over the two decades 1970-1990 necessitated major academic reorganization; this in turn strengthened the campus's ability to achieve its founding educational objectives and serve the UC mission. Strategies to meet the expansion are shown below:

1. Create interdisciplinary programs.
2. Add new academic buildings.
3. Increase residential college accommodation so that undergraduates live on campus at least two years.
4. Build research institutes and professional schools.
5. Take advantage of niche opportunities for graduate and professional growth.
6. Increase outreach programs to increase access and diversity.
7. Collaborate with a variety of off-campus institutions.
8. Use information technology creatively.
9. Build a first-rate library to include digital resources.
10. Increase fund-raising activities.
11. Enhance communication strategies about UC Santa Cruz values, goals, programs, activities, achievements, etc.

Beginning in the late 1970s, through a significantly expanded Admissions Office, the campus launched a sustained program to attract first-year and transfer students to the campus. By the mid-1980s, the campus was making concerted outreach efforts to underrepresented students. A comparison of undergraduate and graduate enrollments, by ethnic composition, for 1991-92, and 2001-02 clearly indicates the success of this sustained effort. Although proud of its success to date in achieving a more diverse student body, the campus (see Case Study) has continued to augment and refine its strategies for attracting and retaining a diverse student body that reflects the full spectrum of the State's population.

As the faculty grew in size, boards of studies (which would be called departments beginning in the 1990s) were able to enrich their curricula, strengthen their requirements, and enhance their popularity, and a number of new undergraduate majors were added. Several of these majors, for example Business

Management Economics, and Film and Digital Studies, have rapidly joined the ranks of the campus's most popular majors.

The number of graduate students in existing programs grew steadily during this period; new graduate or professional programs were added gradually. Particular attention to encouraging such graduate growth and diversification has characterized the past decade, encouraged by both administrative and senate leadership. These efforts bore fruit in the recent inauguration of several new Ph.D. Programs, among them Ocean Sciences (1998-99), Environmental Toxicology (1999-2000), Politics (2000-01), Philosophy (2001-02), and Education (2002-03), as well as several Masters programs. At the same time, graduate students began to press for facilities and services that would enhance the quality of their lives. Such efforts led to a "Graduate Commons" that opened in 2002, and to discussions of the possibility of developing a college that would coordinate a variety of activities and career-development services geared explicitly toward graduate students.

The campus began offering courses in Computer and Information Sciences in the 1970's and, in 1997, the Baskin School of Engineering opened. This state-of-the art professional school specializes in new types of engineering, notably bioinformatics, genomics, nanotechnology, electrical engineering, software and hardware engineering. Several additional engineering and computer science programs were developed at both undergraduate and graduate levels, including M.S. and Ph.D. programs in Electrical Engineering. The campus considers further development of professional programs vital to its future stability and academic health, and is actively exploring several possibilities.

Interdisciplinary research institutes and activities were established in all sectors of the campus, among them the Center for Cultural Studies, the Center for Justice, Tolerance, and Community, the Center for Adaptive Optics, the Santa Cruz Institute for Particle Physics, the Santa Cruz Institute for Geophysics and Planetary Physics, the Institute for Networks, Information Systems and Technologies, the Center for Dynamics and Evolution of the Land-Sea Interface, the Center for Research on Education, Diversity, and Excellence, the Chicano/Latino Research Center, the Center for

Global, International and Regional Studies, the Center of Marine Studies, and the Institute for Humanities Research.

In addition to the important research emerging from these institutes, they have played significant roles in attracting visiting scholars, post-doctoral fellows, and new faculty and graduate students to UCSC, as well as in generating important external grants and gifts. For example, an initial investment in the Center for Humanities Research led to substantial funding by the Rockefeller Foundation. Our institutes and centers have demonstrably strengthened the campus's reputation for cutting-edge interdisciplinary work.

In order to meet the goal of providing a superlative undergraduate educational experience, the campus has built many new physical facilities (discussed in Essay 3). The residential colleges grew gradually in size to between 1,200 and 1,500 students each, thus providing revenue to each college that enabled it to offer a more varied array of co-curricular and social activities for its students. Two new Colleges opened in 2000. Each offers a unique focus: one on international issues, and the other on aspects of community service. These Colleges will receive their official dedication in October 2003.

### **The UC Santa Cruz Libraries**

The growth of the campus's libraries has been and will continue to be critical to the academic growth of all fields. The opening of the award-winning Science and Engineering Library on 'Science Hill' in the early 1990s dramatically augmented the continually expanding resources of the original McHenry Library. The large new addition to the McHenry library, planned to begin construction in three years, will accommodate further expansion of library holdings and provide state-of-the-art web-based services. The campus libraries have in fact taken full advantage of the web to enhance the campus's resources for research and teaching, at the same time that they have steadily built their print, multimedia, and archival collections. In addition to spending over \$3.5 million annually over the next decade to augment its physical collections, thus adding steadily to its present holdings of more than 1,400,000 volumes and other items, the libraries will, through their partnership in UC's California Digital Library, continue to contribute to and enjoy

full access to the world-class resources of the entire University library system and will itself contribute significant specialized research resources to that system. As part of its development strategy, the Library will further increase its solicitation of non-state support, including both funding and research collections, from foundations, corporations, and private donors – a fund-raising effort that has already generated over \$2.35 million in endowments and annual gifts. The campus anticipates that its investment in the Library's further growth will result in its admission to the Association of Research Libraries within the next decade.

### **With the Help of Our Alumni, Partners, and Other Supporters...**

The role of UCSC alumni in supporting the campus's objectives and mission was strengthened by means of an Alumni Council, regional alumni activities, and campus reunions. These activities and structures have helped keep alumni more fully informed about campus developments, to respond to alumni concerns, and take advantage of their own career successes and their movement into positions of leadership in and outside California.

The sizeable growth of campus fund-raising efforts, both the generation of research and curricular and institutional development grants and the generation of private and corporate gifts, has significantly enhanced the campus's ability to achieve its educational objectives, as revealed more fully in Essay 3.

By cultivating partnerships, we have leveraged our resources, talents, and relationships. A variety of these partnerships is exemplified below:

1. Most recently, the campus announced its partnership with NASA. UCSC will manage NASA's first UARC (University-Affiliated Research Center) at the NASA Ames, Silicon Valley site. The contract is for \$330 million dollars over a ten-year period. The partnership will generate opportunities and management monies that will contribute greatly to developing related research programs at Santa Cruz and at the Silicon Valley Center.
2. UC Santa Cruz is currently negotiating a partnership with Cal Tech University to design and operate the new CELT (California Extra

- Large Telescope). Currently it manages both the Lick and Keck Observatories.
3. UC has developed the California Research and Education Network (and subsequently outsourced its management to CENIC). CalREN is one of the most advanced statewide and intercampus networks, which serves not only the UC, but all California's educational institutions.
  4. The campus is an active research participant in two of the four California Institutes for Science and Innovation – playing a key role in both QB3 (California Institute for Bioengineering, Biotechnology and Quantitative Medicine), and CITRIS (Center for Information Technology Research in the Interest of Society).
  5. To take advantage of the more than 20 research institutes with a focus on the Monterey Bay, the campus has partnered with both State and Federal agencies to create research facilities and service organizations that would be otherwise not possible. For example, Long Marine Laboratory leverages connections with NOAA, the California Department of Fish and Game, the US Geological Survey and state and federal marine facilities around the Bay (Monterey Bay Crescent Ocean Research Consortium).
  6. Our students and faculty have access to specialized disciplines and research programs through a sophisticated distributed learning network, and through off-campus partnerships. For example, the campus has several distance education classrooms (on campus and in Silicon Valley). The UC TLtC (Teaching, Learning & Technology Center) webzine highlights some of the programs in which our students and faculty participate.
  7. The campus interfaces with K-12 schools throughout California in programs sponsored and coordinated by our highly innovative and successful Educational Partnership Center (EPC) and supported by several large federal grants including a \$14.8 million NSF Center for Informal Learning and Schools.
  8. The California Digital Library, a co-library of UC provides our students and faculty with access (on-line and in print – through a sophisticated interlibrary loan system) with resources at any UC Library.
  9. The campus is currently exploring a partnership with the Monterey Institute of International Studies, which will significantly strengthen and

expand many of our programs in international policy studies, translation and interpretation, language teaching and international business.

The dramatic progress of the 1980s and 1990s was summarized in 1998 in a major campus statement, *UCSC at the Crossroads*, the report of the 22-member Millennium Committee. This report generated 113 'invitations to action'. The campus is answering these calls in order of priority, as is shown in the following essays.

The Millennium Committee's report was a ringing endorsement of the campus's commitment to use its further growth to become an outstanding research university whose unparalleled commitment to highest quality undergraduate education was linked organically to providing excellent graduate education. The report challenged the campus faculty, students, and staff to engage with the region, the state, and the nation in long-term sustained partnerships. Among its most important conclusions was that campus planning processes had become incremental and formulaic, thereby muting UC Santa Cruz's fundamental goals and objectives. To align processes and goals more systematically, the campus has used the conclusions of the Millennium Report as the foundation for the design of a new process for strategic planning. This story continues in Essay 3.



*Aerial photograph of UC Santa Cruz. The campus of over 2000 acres, situated adjacent to Monterey Bay, was recently named the "most beautiful US campus" by the Princeton Review.*

## WASC Standard 2. Achieving Educational Objectives Through Core Functions



*UC Santa Cruz achieves its institutional purposes and attains its educational objectives through the core functions of teaching and learning, scholarship and creative activity, and support for student learning. It demonstrates that these core functions are performed effectively and that they support one another in the institution's efforts to attain educational effectiveness.*

**R**esearch and scholarship are at the heart of the institutional purposes and educational mission of UCSC. Our origin contributed significantly to the current culture that makes research and scholarship integral to graduate as well as undergraduate education. These goals are reflected in a recent description of UCSC distilled from the goals and mission of our campus:

*"UC Santa Cruz has created a unique environment of intensity and innovations where synergy between research and teaching provides unparalleled opportunities for people who drive intellectual, social, cultural and economic progress."*

Lipman Hearne Report, 2003

In its relatively short 38 year history, UC Santa Cruz has become known as one of the most "innovative" and highly respected campuses in the nation with respect to its many contributions to promoting quality undergraduate education and for many of its interdisciplinary programs and pedagogical approaches to teaching and learning, many of which have become exemplars for other research and liberal arts universities. (Kliwer, 1999<sup>1</sup>; Boyer Report, 1998; UC Santa Cruz WASC proposal, 2002).

The success of UC Santa Cruz in undergraduate education is directly reflected in the nearly 60,000 alumni who have made and are making tremendous contributions to the state, nation and world. As an institution, we continue to evolve to meet the educational needs of today's students – be they undergraduates or graduates – and to prepare them for tomorrow.

Like other major research universities in and outside the U.S., UC Santa Cruz has devoted a considerable proportion of its human, capital, and fiscal resources to the encouragement, facilitation and rewarding of world-class research. Resources have been employed strategically and systematically to support and expand the campus's scholarly mission, and particular attention has been paid to the fostering of interdisciplinary research, research that takes advantage of and contributes to new technologies, research integrated with public service, and research that takes a global view.

Our tremendous success in attracting some of the best new faculty in the nation and world (see Essay 3) and thereby increasing our research contributions and reputation is attributed to the campus's collaborative ethos, its excellent research facilities, strong research institutes, excellent graduate students, the intellectual energy and abilities of our undergraduates, and to the campus's commitment to helping researchers gain external funding. A telling measure of UC Santa Cruz's scholarly achievement and reputation is its recent ranking as fifteenth among U.S. research universities in terms of citations per faculty in scholarly journals.

In the first part of this essay, we will recapitulate some of our achievements in undergraduate education, how we have emphasized research and scholarship at all levels of education, and how we encourage and reward excellent teaching. We then discuss ways by which we plan to increase graduate enrollments and both the size and number of our graduate programs and to become recognized as a leader in developing graduate programs that fit the needs of both students and society for the 21<sup>st</sup> century.

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<sup>1</sup> Kliwer, J. R. 1999. *The Innovative Campus – Nurturing the Distinctive Learning Environment*. ACE Oryx Press, 307 pp.

## UNDERGRADUATE EDUCATION IN PUBLIC RESEARCH UNIVERSITIES - DEVELOPMENT OF THE “WHOLE STUDENT”

*The distinctive genius of the American college is that it is “a place which is neither a house of learning nor a house of play, but a little of both; and withal a microcosm of the world in which we live.”*

*Lawrence Sumner, President of Harvard University,  
quoting Samuel Eliot Morison in Sumner’s  
2003 Harvard Commencement Address*

The responsibilities and expectations that society has placed on American higher education are enormous and require the expertise of a broad spectrum of professionals. These expectations include providing students with:

- a comprehensive and in-depth education in a specific discipline
- a breadth of knowledge and understanding of a broad spectrum of disciplines outside a student’s expertise
- an appreciation and knowledge of other cultures, values and contributions
- skills required to become a productive, engaged, and socially responsible citizen
- leadership skills; our students are not only expected to become contributors to society, they are expected to assume leadership roles in state, nation and world. As such they need to learn to work together in teams, to motivate and organize others to work effectively together to accomplish goals.
- an appreciation of learning and a desire to be life-long learners.

The development of the “whole student” with the attributes described above is dependent on optimal learning which is dependent on outstanding teaching both inside and outside the classroom. It requires a partnership between faculty who are dedicated to providing outstanding curriculum, courses and teaching inside the classroom and student affairs professionals whose expertise in student development ensures optimal learning and personal development outside the classroom. The success of the partnership also depends upon the synergistic interactions of programs that are presented by the 10 UC Santa Cruz residential colleges and its 33 academic departments.

It is the role and responsibility of the 33 academic departments, which are organized into 5 academic divisions to provide the academic disciplinary programs, curricular and courses as well as provide classes that contribute to the campus general education program.

It is the role of the colleges and their student affairs professionals, working with faculty that are housed within departments (many of which are located within residential colleges) to provide:

- programs such as freshman core courses that help students transition from high school to university
- courses outside departments that enrich the curriculum of students
- academic counseling, advising and mentoring of students and tracking the academic progress of each student.
- learning support services
- service-learning programs that encourage volunteerism among students
- structured experiences outside of the classroom that promote the development of socially responsible citizens and leaders.

Departments also provide specific academic advising to their majors and in some cases, learning support and service learning programs.

The model that has evolved at UCSC – which synergistically deploys the resources of both our residential colleges and our departments – has been so successful in promoting student development that other campuses throughout the country are now planning or are launching residential college programs to provide services best administered by the cooperative efforts of student affairs professionals and faculty in the residence of the students (e.g.,

Princeton's new Whitman College, Rutgers, Vanderbilt, and UC Merced).

In the remainder of this reflective essay we examine more closely how the partnerships of residential colleges and academic departments and of academic

faculty and student affairs professionals contribute to student learning and student engagement, the role that scholarship and creative activities play in teaching and learning, how the institution encourages and rewards quality teaching and what the campus has done and is doing to improve graduate education.

### **TEACHING AND LEARNING: "UC SANTA CRUZ – A RESEARCH UNIVERSITY WITH AN UNCOMMON COMMITMENT TO UNDERGRADUATE EDUCATION"**

*Partnerships in academic advising:* At UC Santa Cruz, as well as other universities, academic advising has come a long way from the time when a faculty member, often not well-versed in the nuances of curricular and course requirements sat in their office, 'advising' students on what courses they might need to graduate. During the last 20 years, such prescriptive advising has become the responsibility of professional advisors and is now moving (at UCSC and elsewhere) to academic information systems which do on-line degree audit determinations for students and determine what courses and requirements must be taken and when.

In addition to such prescriptive advising, faculty and student affairs professionals engage in what is now termed "developmental advising" which is "teaching in out-of-class settings to promote student learning and personal development" to help students form and implement educational and life plans (Creamer 2000<sup>2</sup>). In his recent book *Making the Most of College*, Richard Light<sup>3</sup> concludes that "good advising may be the single most underestimated characteristic of a successful college experience."

To improve our advising structure and promote better coordination and division of labor between all campus advisors, we have engaged in a process over the last four years to evaluate our advising practices and their effectiveness and to improve all academic advising across the campus.

A workforce of nearly 70 staff advisors in departments and in colleges (academic preceptors), and specialized advisors in both student and academic

affairs (e.g., EOP, EAP, financial aid), are engaged in academic advising. But the currently highly decentralized and "siloed" system that has evolved has many inherent problems. Much of the effort is duplicative, not differentiated and synergistic and the role of faculty in the advising process is not clear.

The large increase in number of undeclared majors over the last several years (in 2002 nearly 47% of our incoming freshman provided no information of their major interest) also has caused stress on our existing system. Since students are not referred to their departmental staff (or faculty) advisors until they declare their majors, and since most students do not declare their majors until the end of their second year, a great deal of academic advising falls upon staff advisors who, though good generalists, often are not proficient in providing specific recommendations of courses within majors, or in providing information to students that help them select their major and formulate their educational and career goals.

In response to this situation, the campus has several new programs to help provide better advising across the campus. We have:

1. Reduced the number of 'undeclared majors' by initiating a new advising cluster program<sup>4</sup>.
2. Increased the role of faculty by involving them in campus advising events structured around advising clusters – not just departments.
3. Increased the role and impact of faculty by initiation of freshman discovery seminars – many faculty participating in teaching these courses

<sup>2</sup> Creamer, D. G. 2000. Use of theory in academic advising. In: *Academic Advising*, V. N. Gordon and W. R. Habley, Eds. Jossey-Bass Publishers, S.F. pp. 18-34.

<sup>3</sup> Light, Richard J. 2001. *Making the Most of College. Students Speak Their Minds*. Harvard University Press. 242 pp.

<sup>4</sup> All students must now select one of 10 broad interest areas (e.g., Life Sciences, Arts, Physical Sciences, Engineering, etc) when they accept admission to UC. These are not majors, rather areas that represent clusters of majors. Appropriate departments are forwarded their names and departments are expected to contact these new students and begin both the prescriptive and developmental advising process.

reported a significant amount of advising and career mentoring of students.

4. Created CAPs (Coordinating Academic Preceptors) who coordinate all advising between both departments and colleges. These senior staff members also provide professional development opportunities for other staff advisors, they organize and present workshops, and participate in national meetings (NACADA and others) in which they learn of best practices in advising at other universities.
5. Launched our new academic information system that will meet the prescriptive advising needs of our students, thereby providing more time for developmental advising by faculty and staff.

We continue to work to improve all advising at UC Santa Cruz and are encouraged by recent data from the UCUES survey (UC Undergraduate Engagement Survey) that has shown that relative to other UC campuses, our students have a much higher level of satisfaction of academic and non-academic advising from faculty (17% higher than other UC campuses) and staff (18%).

***UC Santa Cruz's dual system of colleges and academic departments work synergistically to help transition students to university, engage students and provide learning support.*** Nationally, there has been a resurgence of interest in and discussion of the educational needs of first year and lower division students as they transition from high schools to universities (Light, 2001, Boyer Reports 1998, 2002; Academic Literacy, 2002, AAC&U report - Greater Expectations 2002, AAU report – Understanding University Success 2003). The elements that most experts in student educational development agree must be part of a transitional 'freshman experience' include (1) development of writing and other communication skills (oral and technological), (2) critical thinking skills, (3) the development of intellectual self-confidence, (4) an understanding of inquiry and research as part of the process of learning, and (5) collaborative learning skills and the ability to work with others. These studies stress the importance of connecting faculty with students as freshman to help them develop these skills and to provide early avenues that will link faculty and students as successful partners.

During the past several years, UCSC has begun to examine its freshman and lower-division experience to determine if we are doing the very best job that we can for our students. We have examined the college core courses<sup>5</sup> and attempting to assess if these courses are the best that we can offer. We have begun to examine our writing programs at the lower division and upper division levels to determine if they are meeting the needs of our students and we will continue to build on existing strengths.

We have recently begun our freshman discovery seminar program to provide more ways to connect our freshman students with our faculty and to introduce students to the faculty's excitement as a researcher/scholar and thereby help students understand the role of research and scholarship in education. This last year over 30 of these seminars were offered, and they received rave reviews from both students and faculty. Students commented that they learned more about what faculty "do" as scholars and began to think of themselves doing research and other creative activities as part of their education. They also commented that the seminar helped them connect to faculty, and that they were able to seek advice and mentoring through discussions of possible career goals. The faculty also commented favorably on the program and nearly all will teach in it again next year. Because of the success of this year's program, we will expand the program significantly over the next few years with the goal of providing at least one freshman discovery seminar to every interested student. More detailed discussions and evaluation of these and other academic programs, including those that help to ensure the successful transition of students from community college to university, will be the subject of the educational effectiveness review that will comprise the second part of the WASC evaluation process.

In addition to the in-class programs that help students transition to the university, student affairs professionals often working in partnership with faculty, play a critical role through the colleges, departments and campus-wide in providing a wide

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<sup>5</sup> Each student is required to take a college "core course" during their first quarter. This course reflects the intellectual theme of the college, and is designed to foster critical thinking, discussion, reading of texts and writing.

range of (1) programs that support student learning, (2) leadership and service learning programs that help develop socially responsible citizens and (3) student organized programs and organizations that are designed to provide structured social engagement of students and thereby contribute positively to student retention (Hurtado and Carter 1997<sup>6</sup>). Below, we provide some details relating to both learning support services and leadership and service learning programs.

***Learning Support Services:*** During the last 4 years, the campus has developed and launched several new learning support programs and a new central Academic Resources Center (ARC). The new center occupies a new building and provides one-on-one tutoring, skill development workshops and has just installed a wireless system of laptop computers that are used on-site for group tutoring and workshops. The coordination of all learning support programs and the establishment of policies that govern each program is the charge of an Academic Resources Advisory Committee that includes faculty members, students and student affairs professionals.

Among the programs available to students is the modified supplemental instruction program (MSI). This program is designed to increase students' academic success by attaching learning support to gateway and transition courses that have proven to be historically difficult based on student performance data (pass rates). MSI uses student learning assistants who are hired from the ranks of the top previous students in the specific courses to guide peer learning groups of up to ten students meeting once per week. Data gathered from fall quarter 2001 clearly shows the effectiveness of this program. In courses in biology, physics, precalculus, economics, computer engineering and computer sciences, a significant increase in passing courses was seen in students who participated in the MSI program.

Two other major academic support service programs include STARS, that provides services for transfer and re-entry students and the ACE program that provides course tutoring for students in sciences, math and engineering. At a 1999 ceremony at the White House,

President Clinton conferred upon the UC Santa Cruz ACE program an Excellence in Education Award – recognizing its outstanding contribution in helping underrepresented minority students succeed academically in sciences and engineering. Since its beginning (1986) this program has served the needs of nearly 3000 students.

***Service Learning and Leadership Programs:*** UC Santa Cruz attracts students who are highly motivated to help others and in many respects, this is one of the defining features of the UCSC student character. Nearly all our students participate in some volunteer activity and collectively students/faculty and staff contribute more than one million hours in volunteer service to community annually. The many volunteer/service learning and leadership programs on campus are collaboratively provided by both faculty and student affairs professionals and are offered in academic departments, colleges and through many of the more than 150 student organizations. A few examples of these programs include college programs such as Oakes Service Learning, Merrill Honors Program, and Colleges Nine and Ten. These programs place students in schools and in non-profit organizations and combine an in-class experience with an off-campus volunteer experience. In several of our departments (e.g. Community Studies), service learning is required as part of the major experience. Lastly the Campus' Student Leadership Certification Program and the Chancellor's Undergraduate Internship programs provide opportunities for more than 100 students annually to gain classroom knowledge of and real life experience in leadership.

The importance that our students place in providing service to others is likely related to the fact that UCSC ranked eighth nationwide in the number of students (not percentage) who have served in the U.S. Peace Corp. We have just been honored for our 500<sup>th</sup> volunteer.

***Research, scholarship and other creative activities are integral to UCSC teaching and learning:*** Research and scholarship are at the heart of the educational mission of UCSC – for undergraduate students, graduate students and faculty.

Our historical beginnings as primarily an undergraduate institution contributed significantly to the culture that now exists that makes research and

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<sup>6</sup> Hurtado, S. & Carter, D. F. 1997. Effects of college transitions and perceptions of campus racial climate on Latinos' sense of belonging. *Sociology of Education* 70: 324-345.

scholarship integral to undergraduate as well as graduate education. From the beginning, faculty worked with undergraduates as research colleagues, sometimes because the faculty did not have graduate students with whom they might work as research colleagues. In addition, the requirement established at the founding of UC Santa Cruz – that every student had to complete a senior ‘capstone’ experience – meant that most undergraduates undertook a research project and wrote a thesis, many of which were of the quality of graduate theses and were published. Thus from the beginning, we have had a history of incorporating undergraduates in the research enterprise. Even with the growth of graduate programs, this remains the case and nearly 50% of our graduating undergraduates have completed significant independent research and writing.

The new freshman discovery seminars are designed to introduce freshman to the excitement of research and to encourage them to think of research as being integral to their educational experience from the very start of their university career.

For the last five years, research achievements of our undergraduates have been the focus of a week-long ‘Student Achievement Week’ in which undergraduates describe their research in poster sessions, platform presentations, public readings, art events (student opera, ‘Open Studios’, etc.). The week is culminated by a well-attended campus event that is hosted by the Chancellor to recognize the contributions of both the students and their faculty mentors. The ten most outstanding senior theses from each academic division are awarded the dean’s prize, the top three from each division are awarded the Chancellor’s prize and the most outstanding senior thesis from the campus is awarded the alumni prize (a substantial cash award from the Steck family).

The importance and success of our history of incorporating research into undergraduate education is reflected in statistics that show that in comparison to all public AAU and UC campuses, we rank second with respect to the number of our undergraduate students who go on and *complete* their doctorate degree.

### **UC SANTA CRUZ ENCOURAGES AND REWARDS EXCELLENT TEACHING.**

During the last decade, characterized by unprecedented growth of both our student body and faculty, we have continued to attract some of the best scholars and teachers in all disciplines. Recruitments generally net our first or second choices among our candidates who choose UCSC over a prestigious institution such as Harvard, Yale, other UC campuses, the University of Michigan, and others. Many of the faculty who choose to come to Santa Cruz do so because of their commitment not only as scholars, but also as educators.

Most departments actively select faculty members who they expect will be both outstanding scholars as well as educators. Departments frequently request candidates for faculty positions to present two seminars – one a research seminar and the other a seminar to demonstrate their teaching abilities.

Upon being hired, faculty members are provided with two years (or more) of monthly brown-bag seminars focused on developing their abilities as educators and scholars and on understanding the culture and operations of the campus. These seminars which are

sponsored by the Office of the Campus Provost and Executive Vice Chancellor, also provide social opportunities for faculty from different disciplines to meet each other.

Like all faculty and graduate students, they are encouraged to use the services of our acclaimed Center for Teaching Excellence. This center organizes workshops and provides publications (including the quarterly *Focus*, with articles on teaching and learning practices), provides in-class evaluation of teaching techniques, helps instructors design useful course evaluation surveys, works with departments to design and deliver student evaluations of specific instructors and works with the campus’ Faculty Instructional Technology Center to provide training and support to encourage faculty to utilize technology (e.g. WebCT, on-line placement and student assessment software) to improve teaching and learning.

Quality teaching is expected of all UC Santa Cruz faculty and is examined critically during the personnel review of each faculty member (this occurs every two

years for assistant and associate professors and every three years for full professors). Departments, division deans, the Academic Senate's Committee on Academic Personnel, Ad Hoc Committees, and occasionally the campus Provost and Chancellor, read student evaluations of faculty teaching and letters from colleagues with expertise about the quality of the faculty member's teaching.

Quality teaching is not only rewarded during the promotion process but it is also recognized in two campus-wide teaching awards ceremonies. Annually,

### **UCSC IS INCREASING ITS GRADUATE STUDENTS AND PROGRAMS, AND IS SEEKING WAYS TO IMPROVE THE QUALITY OF GRADUATE EDUCATION.**

A significant increase in the number and academic range of the campus's graduate and professional programs over the past two decades, along with increasing size and diversity of our graduate student population, has added welcome energy and intellectual resources to campus life. These changes offer a firm foundation for the campus's plans to more than double the number of graduate and professional students over the next decade and to increase the proportion of such students from ten to fifteen percent of the campus's total student population. The campus administration and faculty are committed to ensuring that such growth results in a further enhancement of academic quality, fueled by the continuing appointment of first-rate faculty, provision of first-rate research facilities, supplementing state graduate-support funds by increasing federal and foundation grants, internships, endowments, and other private gifts.

The campus will also institute other strategies for enhancing its competitiveness in attracting first-rate graduate students and ensuring their preparation for professional success, strategies that respond to needs articulated in 2001 by a special University-wide Commission on the Growth and Support of Graduate Education. In its report to the UC Regents, the Commission stressed the importance of graduate students overall quality of life and professional growth opportunities as key to recruiting and student success. A variety of national studies have demonstrated persuasively that graduate students can benefit from professional development opportunities offered outside, as well as within, their departments. They can benefit from a range of cultural and social opportunities that continue to expand their horizons

the Alumni Foundation recognizes the most outstanding teacher from the faculty in a large event attended by faculty, students, alumni, and community members. A substantial cash award is given as a prize. In addition, the Academic Senate's Committee on Teaching (COT) annually recognizes the most outstanding teachers and graduate student teaching assistants in a campus-wide event. The recipients of these awards also receive a significant financial award and campus and community recognition.

beyond their specialized academic fields and that enable them to interact productively with faculty and graduate students outside their own fields. It was in response to such desiderata that graduate students, faculty, and administrators collaborated to build, in 2001-02, a Graduate Student Center that has enhanced graduate student interaction across disciplinary lines. A similar collaborative effort is leading to the establishment of a pilot institute administered through University Extension, which will sharpen graduate students' skills in the use of web-aided pedagogy.

Major efforts to improve the quality of life and professional development of graduate students are reflected in the planning now underway, with the strong endorsement of the Academic Senate's Graduate Council and the Graduate Student Association, to establish a Graduate College at UC Santa Cruz. This concept also has the support of the campus administration but much more discussion must occur among all constituents including appropriate academic senate committees before this idea becomes a reality.

The Graduate College, if established, could respond directly and creatively to recommendations made by the Commission on the Growth and Support of Graduate Education in its September 2001 report to the UC Board of Regents. The Commission recommended "that the University re-examine a number of internal practices to improve support for and foster the progress of our graduate students." Among their conclusions were that every UC campus should make graduate housing, especially for first-year students, a priority and that UC's campuses should be made "the ten best campus environments in

the nation for graduate students”. This challenge will be met in part by improving mentoring, consciously designing new opportunities for graduate students’ professional practice, creating community spaces where graduate students can meet and study, and expanding career planning and placement and other services and by elevating the visibility of graduate students and graduate education.

The campus also recognizes that adequate and affordable on- and off-campus housing in this high-rent state will be critical to attracting and retaining excellent graduate students. Thus, part of the revision of its Long Range Development Plan will be to ensure that additional graduate student housing is included.

The Graduate College at UCSC will build on several features of the campus’ long-standing and very successful undergraduate residential college system, while adapting those features specifically to the needs and interests of graduate students. It will complement rather than duplicate the curricular programs, research opportunities, co-curricular activities, and other services provided by the campus’s degree-granting graduate programs and by the academic divisions.



*Research is integral to all education – both at the graduate as well as the undergraduate level. Over 50% of our undergraduates participate in research and other creative activities. We are increasing our number of graduate students and programs not only because our knowledge-based economy relies on new ideas that emerge from the studies of these students and their faculty, but also because a mature graduate program is essential to the quality of undergraduate education, which is enhanced by the work of inspiring young scholars in the undergraduate classrooms, studios and laboratories.*



*The UCSC Colleges provide relatively small communities where students engage both inside of and outside the classroom. In both national (NSSE) and state (UC) surveys, our students report that they are more intellectually engaged, more often discuss ideas outside of class with faculty and others and have had serious conversations with students different from themselves in terms of ethnicity, religion and values. They also report reading more, writing more papers and report that their coursework emphasizes higher-level thinking than students at comparable universities.*

## WASC Standard 3. Developing and Applying Resources and Organizational Structures to Ensure Sustainability



*UC Santa Cruz “sustains its operations and supports the achievement of its educational objectives through its investment in human, physical, fiscal, and information resources and through an appropriate and effective set of organizational and decision-making structures. These key resources and organizational structures promote the achievement of institutional purposes and educational objectives and create a high quality environment for learning.”*

In her opening remarks in the fall of 2001 at the annual Chancellor's convocation, UC Santa Cruz Chancellor M.R.C. Greenwood reaffirmed and extended the educational objectives articulated in the 1998 report of the Millennium Committee. She gave particular attention in her remarks to three of these objectives:

1. “Continue our distinction as the finest public research university in the nation for undergraduate education and emphasize the *research* aspect of our role.
2. Enhance an intellectual environment that attracts and inspires the best faculty and also attracts first-rate graduate students and postdoctoral fellows who will comprise the next generation of academic leaders.
3. Strengthen our culture of diversity, creativity and discovery”.

Stressing her strong endorsement of the Academic Senate's call for the campus to promote actively significant graduate program growth over the coming decade, the Chancellor emphasized, "Vigorous research activities are integral to developing a quality graduate program. And a mature graduate program is essential to the quality

of undergraduate education, which is enhanced by the work of inspiring young scholars in the undergraduate classrooms and laboratories.”

This address and the Millennium Committee Report launched a formal strategic planning process that has brought together all campus stakeholders to translate into concrete institutional programs the report's collective vision of this University's future role in serving California, the nation, and the world. In this essay we first describe this current planning process and highlight the collective decisions we have made with respect to what UC Santa Cruz will strive to become over the next two decades. We then present some outcomes of our planning process to date with respect to academic program development and highlight concrete ways in which we are integrating our investments in human, physical, fiscal, and information resources in order to support these programs. We pay particular attention in the last section of this essay to examining how the current budgetary exigencies are pushing our institution to seek new, more sustainable avenues of support, rather than relying on the ever-diminishing funds provided by the State of California.

### STRATEGIC PLANNING – THE ROADMAP

The strategic planning process of the past five years is best understood as an overlapping five-phase process involving the work of more than fifty committees and hundreds of faculty, students, staff and administrators. The following provides a brief summary of their work.

***Phase 1: Articulation of Core Values and Shared Vision.*** The 1998 Report of the Millennium Committee resulted in 113 “calls to action” that were assigned to appropriate senior administrative officers

or the Academic Senate. One result of this process was that the Senate requested the creation of four new senior administrative positions to implement the recommendations: (1) a full-time Vice Provost and Dean for Undergraduate Education; (2) a full-time Vice Provost and Dean for Graduate Studies; (3) a full-time Vice Chancellor for Research<sup>1</sup>; and (4) a

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<sup>1</sup> As part of the campus' budget reductions, the research and graduate studies position has been

full-time Vice Provost of Academic Affairs. More recently, a Vice Provost for Information Technology has been added to the senior administration (see below). In addition, the Campus Provost initiated a two-year process that sought to identify new programmatic ideas from faculty groups, deans, and other senior administrative officers. The Provost's initiative marked the beginning of a major transition from a mainly-workload-driven resource allocation formula ("Managing Faculty Resources") to a budgetary process giving greater emphasis to qualitative and programmatic goals.

***Phase 2: Development of Detailed Long Range Academic Plans.*** Traditionally, much campus planning was done at the departmental and divisional levels and was, to some degree, myopic. Units periodically submitted and annually updated 'six-year plans' that focused primarily on short-term resource requests. These plans typically did not look very far into the future, nor did they reflect a shared vision for campus development.

In contrast, the Campus Provost's two-year initiative, developed in consultation with the Academic Senate and articulated in the Fall of 2002 in a major position paper, "Planning for the UC Santa Cruz of 2010," formulated criteria for evaluating departmental, divisional, and other program proposals based on eight campus-wide priorities:

- Strengthen research and scholarly accomplishment and distinction.
- Markedly increase graduate programs and enrollments.
- Develop interdisciplinary programs at all academic levels.
- Enhance faculty, staff and student diversity.
- Markedly increase external support, from grants and contracts as well as from private fundraising.
- Creatively combine present resources with new resources.
- Develop innovative programming in non-traditional areas (e.g., Silicon Valley Center, State-supported summer instruction, and other off-campus enterprises such as EAP, UC in DC).
- Propose accountability measures.

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recently combined into a single appointment. This is consistent with models of most other UC campuses.

Plans and strategies for moving forward proposals vetted during this process are preserved on a campus website. The Academic Senate was fully involved in the process of reviewing proposals and in recommending to the administration further programmatic areas, particularly those involving inter-divisional collaborations worthy of additional exploration. This extensive consultation process led in October 2002 to the report "Looking toward the UC Santa Cruz of 2010...The Path to Implementation", which articulated four areas of critical importance to the evolution of the campus – (1) research leadership, (2) commitment to graduate education, (3) commitment to undergraduate education and (4) infrastructure investments, and it provided an academic vision and resource strategy to reach these goals.

This phase of the planning process also resulted in increased attention to the development of leadership throughout the campus, in particular the strengthening of the roles of vice provosts, vice chancellors, deans, college provosts and departmental chairs. Also, it is resulting in new departmental review processes. These will provide more focus on assessing undergraduate learning and the development of new graduate programs and large research initiatives and cross disciplinary research initiatives. The new processes are intended to help shift the culture to one of shared responsibility for program and resource development, and accountability. This is discussed in greater detail in the final essay.

The campus continued during this phase to invest in partnerships to leverage state and regional resources, among them the California Digital Library, the Monterey Bay Crescent, (a formal association of the many research institutions that ring Monterey Bay), several multi-campus research centers and research units, and several Cal-ISI projects. UCSC also began negotiation with NASA that recently has led to the establishment of a \$330 million research partnership with NASA Ames. Currently the campus is examining the possibility of an acquisition of the Monterey Institute for International Studies (MIIS).

***Phase 3: Implementing the Academic Plan in the Context of Budget Cuts.*** As the campus began to move forward during the Fall and Winter of 2002-03 to implement many of the recommendations

resulting from the planning process, the extent of the California and UC budget crisis became clear. That crisis required the campus to reconcile contradictory imperatives (e.g. accommodating increasing enrollment demand, delivering a quality education, achieving our goals for graduate education, fulfilling our research mission, attracting and retaining the best faculty and staff, and investing selectively in the opportunities that will shape our future) while operating on a reduced budget.

The administration responded by launching what is known as the EBC (Executive Budget Committee) process. This process, facilitated by a professional consulting firm, has been working with faculty, students, staff and administrators to find ways to make campus operations and service delivery more cost-effective and efficient, and to develop improved mechanisms for aligning resource allocation with campus goals and priorities. It is also examining the cost-effectiveness of various academic and instructional programs (e.g. our current academic advising systems) and of campus governance procedures.

***Phase 4: Infrastructure and Long-Range Physical Planning.*** This part of the planning process, along with that described below (step 5 – development and communication) is referred to as the “*Framework for the Future*”. The campus is developing a long-range framework for the physical development that will be required to support the long-range academic plans. This planning is crucial to the future of UC Santa Cruz, as the decisions we make now will shape the physical and accordingly the academic character of the campus for decades to come. Three separate committees are working as part of this planning phase. These include the (1) Growth and Stewardship Task Force which has established the principles for addressing growth within the context

of campus values; (2) Strategic Futures Committee which is identifying the range of potential academic and research programs that might be considered between now and 2020 and providing insight into the land resources that should be reserved for future campus development beyond 2020; and (3) the Long-Range Development Planning (LRDP) Committee which is working on a revision of the 1988 campus long range development plan, a formal planning document that will be vetted by the campus, the office of the UC President and the local community. One of the biggest decisions that will be made in this plan will be the campus’s enrollment target for 2020, and how that enrollment will be distributed among undergraduate, graduate, and professional sectors.

***Phase 5: Communications and Development.*** Good communication has been key throughout this extensive strategic planning process, and the campus realizes that a strong communications system is critical to the campus’ future success. The effectiveness with which we present our messages is an important factor in our ability to attract excellent students, faculty, and staff, as well as enhance significantly our private support.

With the help of Lipman Hearne Inc. (a marketing and communications firm specializing in higher education), the campus has just completed developing a “Strategic Communications Plan” that is currently being vetted throughout the campus. This report identifies a number of concrete actions that will raise awareness of the campus’ goals, programs, and accomplishments, and secure support from a wide array of constituents who will want to invest intellectually and financially as partners in UC Santa Cruz’ next stage of development.

## DECISIONS RESULTING FROM STRATEGIC PLANNING

The remainder of this essay cannot possibly cover all of the concrete actions presently being taken as a consequence of the planning process described above, but we do offer a glimpse of some of the major developments in (1) academic programs; (2) growth and diversification of our faculty and staff; (3) building programs; and (4) information resources (library and information technology).

### **New Academic Programs for the 21<sup>st</sup> Century UC Santa Cruz**

The ten-year academic plans that were provided by the chief academic officers as part of the planning process described above provided a plethora of proposals for the development of new or expanded

academic programs that would meet the needs of current and future undergraduate and graduate students. Even prior to today's California budget crisis, the funds required to implement all the new program ideas exceeded budget reality by a factor of about ten to one. To determine which of these programs would be allowed to evolve, the campus underwent an extensive budget process that involved the academic senate, faculty/staff and student committees as well as administrative committees. Summaries of the budget process and decisions are located at [http://www.ucsc.edu/news\\_events/messages/02-03/01-13.evc\\_budget.html](http://www.ucsc.edu/news_events/messages/02-03/01-13.evc_budget.html).

There are many ways that we might describe and aggregate the successful programmatic proposals, but here we will focus on the ways in which particular groupings of programs address the criteria articulated in "Planning for the UC Santa Cruz of 2010". Many of the most promising ideas in the draft plans share common characteristics. These include: the intersection of new scholarly directions and new technologies; public service and knowledge and policy issues; interdisciplinary programs; and programs that address local issues, global/international issues, or both.

***The first common area of overlap is intersection of new scholarly directions and new technologies.*** As noted in several plans, the campus is ideally situated to develop these programs both on-campus and at off-campus sites. For example, the proposal for a Masters Degree in Fine Arts in Digital Arts and New Media links to the School of Engineering. The campus is encouraging the collaboration of engineering and the natural sciences via the proposed Applied Physics Degree Program, linking the physics curriculum with engineering preparation, and joint research initiatives such as remote sensing involving Engineering, Environmental Studies, and Earth and Marine Sciences. The expanding Institute of Geophysics and Planetary Physics (IGPP) provides another example of how building on current interdisciplinary strengths can make significant educational and research contributions to the campus. The recent multi-UC campus QB3 and CITRIS awards will provide new opportunities for research collaboration for faculty across many disciplines. The proposed Science, Medicine and Technology Studies program and the Anthropology

of Technology emphasis also chart new areas of scholarship that are being created at the intersection of existing divisions and departments. As focused discussion among the divisions continues, refinements of specific program proposals should show how advantages can be maximized and, where possible, linked.

***The second set of common areas of overlap will enable a campus-wide integration of research and training with public service, knowledge and policy topics.*** Our society has a need for faculty who draw on their academic training to contribute to broader public discussions. The importance of the contribution that faculty can make in this arena requires moving beyond the traditional academic conceptualization of "theory" and "practice" as mutually exclusive domains. Some UCSC departments are already engaged in this kind of work. The Division of Social Sciences' new Center for Justice, Tolerance and Community provides an exemplar of how a clear vision and strong research agenda can be developed within and across disciplines. Similarly, proposals for the Integrative Coastal Ecology research program, the Masters in Environmental Studies, the Masters in Public Humanities, and the Education Ed.D. for practicing educators all reflect an interest in linking new research with informed public activism. This consistent emphasis builds on previous campus strengths and should instigate both broader discussion and fuller refinement in many disciplinary areas.

***The third area of emphasis is interdisciplinary activities.*** The proposals show the potential of building on emerging intellectual interests among faculty across traditional academic boundaries to create strong new programs. Some examples of proposals that illustrate the promise of interdisciplinary programs are the Ph.D. program in Visual and Performance Studies, the program in Health Sciences, the Engineering Management program (Engineering with Economics and Psychology), and the Ph.D. program in Comparative U.S. Studies. Within the Division of Social Sciences, examples such as the Center for Conservation Science and Policy and the Center for Agroecology and Sustainable Food Systems show a commitment to tie new departmental faculty lines to building on the existing strengths in the division's seven

research centers. These proposals suggest a creative use of existing and new resources toward added excellence and new intellectual directions. Individuals involved in planning new programs are encouraged to delineate explicitly the connections between new and extant strengths both in research and in the curriculum. The range of ideas proffered in the draft plans is most encouraging.

***The fourth area of interesting new developments is the range of programs with a global view.*** Among the many proposals put forward, a number explore the global context in which we now live, and others examine how current configurations of power, resources, and other aspects of the modern world play out in a locality, sometimes in our own region. If appropriately developed, these approaches will link existing programmatic strength such as Community Studies and CGIRS with new initiatives ranging from a major in Health Sciences (as well as the proposed major in Human Health—a collaborative effort by the Divisions of Humanities, Natural Sciences and Social Sciences) to the Honors Minor in Global Studies or the undergraduate and masters major in the Liberal Arts. The expansion of existing programs like International Economics also fits here.

Similarly, the endowed programmatic emphases in South Asian music links with the Humanities Division’s plans for a South Asian Studies Center, a center in which Social Sciences units will also be involved. The Pacific Rim Roundtable for Technology and Society is another promising direction of academic programming, with the capacity to bring together an interest in global concerns with a focus on how those play out in a locality. The proposed Humanities doctoral program in Global Studies, for example, explicitly takes its shape from the collaborations between campus scholars and scholars outside the U.S. Finally, the consistent inter-divisional emphasis in each of these areas suggests that further cross-disciplinary work will be most useful.

### **Growth and diversification of faculty and staff.**

***Faculty Diversification.*** Concomitant with the nearly 50% growth in student enrollments at UC Santa Cruz since our last WASC review, the campus

has increased its faculty and staff proportionately. Even considering the very high cost of living in the Santa Cruz geographic area, we have been highly successful at recruiting our top candidates in nearly all searches and we have an overall faculty retention rate of about 97%.

|                  | <b>1993-04</b> | <b>2003-04</b> |
|------------------|----------------|----------------|
| Faculty number   | 431            | 519            |
| Percent women    | 29% (125)      | 35% (184)      |
| Percent minority | 21% (89)       | 24% (125)      |

As we recruited our faculty and staff, the institution placed a very high priority on increasing its underrepresented minorities, and to assure that women were well represented in both pools. One of the aims of introducing diversity into the curriculum has been to signal prospective faculty members and to remind departments that the campus is open to and supportive of diversity. A representative curriculum is prerequisite to attracting a diverse faculty, especially in this post-Proposition-209 era.

In any recruitment of academic staff and faculty, search pools must reflect the proportion of minority and women available for positions. As a consequence of these policies and procedures, and the curricular reform initiatives described above, we have significantly increased both our proportion of minorities and women in our faculty ranks over the last ten years. Currently, we have the distinction of having the most ethnically diverse faculty and the highest proportion of women ladder faculty of all UC campuses.

Over the past 20 years, the campus’s greatest success in terms of faculty diversification has been in the hiring of women. One third of the campus's present ladder faculty members are women, although the numbers are spread unevenly over the campus' academic departments. Since 1990, over 40% of the ladder faculty hired have been women. Most of these women, however, are still assistant and associate professors. Somewhat less than a quarter of the full professors are women, meaning that the campus has fewer senior women than would be desirable to draw on for positions of academic leadership. But, as the large cadre of assistant and associate professors steadily advance in rank over the next decade, the campus will have an increasingly rich pool of senior women scholars from which to draw department

chairs, Academic Senate leadership, and major academic administrators.

The campus has also made significant, if uneven, progress over the past two decades in the hiring of ethnic minority scholars. Of the new faculty hired since 1990, 30% are listed in campus records as ‘minority’ faculty. Of the current ladder faculty, 22% are listed as minority faculty. It must be noted that most of these faculty are relatively junior – 35% are assistant professors, 27% associate professors, and only 12% full professors. The campus must thus make a major effort to help junior faculty gain tenure and move into the rank of full professor and into positions of campus leadership. It should also be noted that the greatest progress to date has been in the hiring of Asian faculty (that is, both Asian-Americans and Asian nationals), who constitute half of the minority faculty (about ten percent of the total campus faculty). Hispanic faculty, about thirty in number, constitute about seven percent of the ladder faculty and African American faculty about four percent. Only three ladder faculty are listed as American Indian.

We credit the *Campus Curriculum Initiative* (CCI) for much of our success in recruiting and retaining new minority faculty. In May 1999, Provost Simpson announced a plan to fund eight ladder faculty FTE aimed “at defining a curriculum that deals with present-day societal issues related to gender, ethnicity, and culture” and that positioned the campus to respond creatively to the challenges presented by an increasingly diverse student body and an increasingly diverse state population. In response, individual faculty and faculty clusters submitted nearly fifty curricular proposals. After a broad consultation process, in part underwritten by the Hewlett Foundation, conference participants and a six-faculty CCI committee recommended using these eight new faculty positions, augmented by eight ‘matching’ positions contributed by divisional deans, to support two academic program themes: (1) Indigeneity, Diaspora, and Comparative Culture and (2) Studies in Difference, Justice, and Citizenship. These programs are discussed in greater detail in the *Case Study: Diversifying the Curriculum*. This initiative has resulted in ladder faculty appointments in nine departments in three academic divisions. The initiative caught the attention of UC President

Atkinson who forwarded a description of CCI to Chancellors at our sister UC campuses extolling UCSC’s creativity and effectiveness in fostering curricular diversity.

**Staff Recruitment, Retention and Diversity.** Even though the campus has worked diligently to recruit and retain talented staff who reflect the diversity of our state’s employee pool, we have not been as successful as we wish to be.

|                  | Career Staff | % Female | % Minority |
|------------------|--------------|----------|------------|
| <b>1994-1995</b> | 1590         | 62%      | 25%        |
| <b>2002-2003</b> | 2226         | 63%      | 23%        |

These data reveal that even though our career staff increased by about 40% since our last WASC review, we have not been able to increase significantly our pool of minority career staff. Comparisons with other UC campuses reveal that we rank last with respect to the percentage of minorities we employ and close to the median in terms of the percent women in our staff. This ranking is likely a direct reflection of the demographics of our community, which has a significantly lower minority population (in percentage and numbers) of any other community in which a UC campus is located. However, we have pockets of localized success. The Division of Student Affairs, for example, has increased its minority staff pool by six percent during this period. The campus is examining such successes for best practices that may be applied to other divisions.

We do know that both the recruitment and retention of talented staff, be they minorities, non-minorities, males or females, is highly affected by the career development and advancement opportunities made available to them. As a consequence, we have developed a Training & Development Department in Human Resources, with the strategic goal to provide skill-training necessary to build a strong and sustainable workforce for the campus. This department delivers approximately 200 courses to over 1200 participants per year. In the fall of 2003 these courses will include: Supervisory Development, Strategic Thinking & Problem Solving, Situational Leadership, Leading in a

Climate of Change, Performance Management, Correcting Performance Problems, Communicating for Success, Effective Presentation Skills, and the Masterful Trainer. In addition many technical training workshops will be offered to enhance the IT competence of staff and to develop the competencies required to successfully create and lead the campus into our new business paradigm.

***Development of new physical infrastructure.*** The dramatic enrollment growth and program expansion that UCSC has experienced since its last WASC review has been made possible in part by a massive capital building program that has brought a multitude of new buildings that serve the educational and research needs of academic programs, buildings that help build and support partnerships in our local and adjacent geographic region, and housing to help meet the needs of both our students and our faculty. In less than ten years we have built nearly 850,000 assignable square feet of new space funded by about \$580 million of financial support, about 50% from state resources and 50% from private funds. Our next five-year building schedule should bring on another \$225 million of new state-funded buildings.

Some of the largest projects include the (1) new Arts Complex which in total added about 30 million dollars of new studio, performance, classroom and office space to the Arts and space for the new Film and digital media program; (2) two new Social Sciences buildings<sup>2</sup> and additional space in the new engineering building<sup>3</sup> to accommodate the rapidly expanding programs of the social sciences; (3) the renovation of one building to accommodate the new Baskin School of Engineering and the construction of two new engineering buildings (>\$90 million

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<sup>2</sup> The two new academic buildings were under construction during our last WASC review. But since then, these have become the nuclei of two new colleges totaling nearly 3000 students. These new colleges are associated directly with the division of social sciences and are the homes of our programs in international education and the Center for Justice, Tolerance and Community.

<sup>3</sup> Economics will soon be moving to space in the new Engineering building and the Department of Education will be getting new space from new building in other disciplines.

total); (4) new buildings for the natural sciences. These include a new building for Earth and Marine Sciences, a large new building for the physical sciences, a building to support the new Center for Adaptive Optics, a new Interdisciplinary Building that houses programs in Physics, Astronomy and Environmental Sciences and a new, privately funded Oceans Health Laboratory and classrooms and a new education center located at Terrace Point (Long Laboratory and Seymour Center); (5) a large new 51,000 square foot building for Humanities. In addition, if the upcoming bond measure is funded, the long-awaited McHenry Project will begin which will provide over 80,000 ASF of space in the library. This space will be the centerpiece of our library's ongoing transformation into technologically cutting-edge knowledge center and node to the California Digital Library (see expanded discussion of our library and its goal to become a member in the Association of Research Libraries (ARL) in linked case study).

To fulfill our commitment to house as many of our students as possible on campus<sup>4</sup> the campus has provided nearly 2000 new bed spaces for undergraduate and graduate students during the last several years. Most of the new bed space has been built in existing or new colleges in keeping with our commitment to a college model that provides a community where students both live and learn. As we felt the pangs of growth during the past several years, much of our college housing stock was reserved for first year students. With the addition of new bed space, we now provide two-year housing guarantees to all entering students; and many of our upper division students are electing to live on campus as space is available, thus enriching the social and educational ambiance of the colleges.

Currently we provide on-campus housing to about 25% of our graduate students. During this academic year, the campus will examine means by which more campus housing may be made available to graduate students, and at a lower cost.

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<sup>4</sup> In our last LRDP planning document, we stated that the campus hoped to be able to accommodate up to 70% of its students. At present, we house nearly 50%. This is the highest percentage in UC and much higher than almost any other national public research university.

As mentioned previously, we also have an aggressive housing plan to accommodate many of our faculty and staff in campus-owned rentals or faculty purchased homes. Currently nearly 200 faculty and staff live in homes of this type.

### **Reorganization and expansion of knowledge resources.**

The rapid growth in information technology that has swept into universities during the past decade has affected every aspect of how we do business at UC Santa Cruz – be that education, research, or management. During this past decade, our information technologies have grown in a highly decentralized manner. The strategic planning process helped the campus recognize the need to provide better integration, coordination and resource sharing to optimize the effectiveness and cost-efficiency of delivery. A two-year study of its information technologies (including those delivered by the libraries) has resulted in a total reorganization of IT, coordinating and managing all knowledge resource delivery services under a Vice Provost for Information Technology (a new senior administrative position).

One of the first decisions of the new Vice Provost and campus has been to consolidate all campus-wide knowledge resources into the new Division of

Instructional Technology. This new service division will combine delivery services (a division previously known as CATS (Communication and Technology Services), with media services (previously aligned in the library) and IT applications across the campus. Accordingly, this Division will oversee and set policies for campus email, IT security, Internet infrastructure, portals (student, faculty, alumni, parent portals), campus web pages including departmental web presentations, the campus financial information system (FIS), its new PeopleSoft™ Academic Information System (AIS) which is being launched this academic year, and the campus ‘data warehouse’ – the repository and access point for all institutional data. In addition, the campus is expanding its use of wireless technologies, providing wireless nodes throughout classrooms, laboratories, libraries and community space (the wireless node project which will deliver more than 200 wireless nodes during this academic year). Lastly, the Division of Information Technology will also oversee the operations of SEVIS (for tracking international students), on-line graduate applications, classroom technology applications including WebCT, distributed learning technologies and methodologies and it will help keep the campus community aware of new developments and applications in IT through various training programs, seminars and workshops.

## **CURRENT BUDGET EXIGENCIES – SEEKING A SUSTAINABLE BUDGET MODEL**

From the perspective of the university, California’s current fiscal condition may be viewed as another in an ongoing cycle of prosperity followed by retrenchment. The current recession resembles those of the 1980s and ‘90s, except more profound. University policy makers are recognizing that these cycles are mere blips in a longer-term trend towards diminishing state support for the university. State support to the University of California has declined from over 70% of the university budget in its heyday to less than 40% more recently. Though all Californians fully expect the state to recover within a few years and to resume its role as a major economic engine for the nation and the world, as university administrators, we must also recognize that even after the recovery, state support to the university will likely continue on a downward trend.

Therefore, at this moment in our history, we must grapple with serious short term shortages, hoping for a near term recovery, while recognizing that in the longer run the university will inevitably have to rely on new sources of revenue and more efficient ways of doing business.

### **Contracts, Grants, Gifts, Regional Partnerships**

Although we continue to rely on state support to provide our most basic resources (i.e. faculty salaries; construction and maintenance of classrooms, laboratories, and offices; and library collections), we are increasingly seeking supplementary revenue streams in the form of contracts, grants, gifts, and regional partnerships to protect the long-run vitality of the institution.

As part of its planning effort, the campus has set a goal to “strengthen research and scholarly accomplishment and distinction” and to “markedly increase external support from grants and contracts as well as private fundraising”. To ensure our success, we have engaged all the campus’s key administrators in the enterprise of raising money. We have brought fund-raising experts to the campus to train our officers and foundation members. In particular, we have recast the roles of our academic deans and college provosts to include, among their primary duties, identifying new sources of revenues, cultivating relationships with potential donors, and closing deals. We have also decentralized the fund raising process by locating development officers within the divisions for which they raise funds with direct reporting lines to deans and vice chancellors, and we have added new development officers in key areas such as the colleges, student affairs, and undergraduate education.

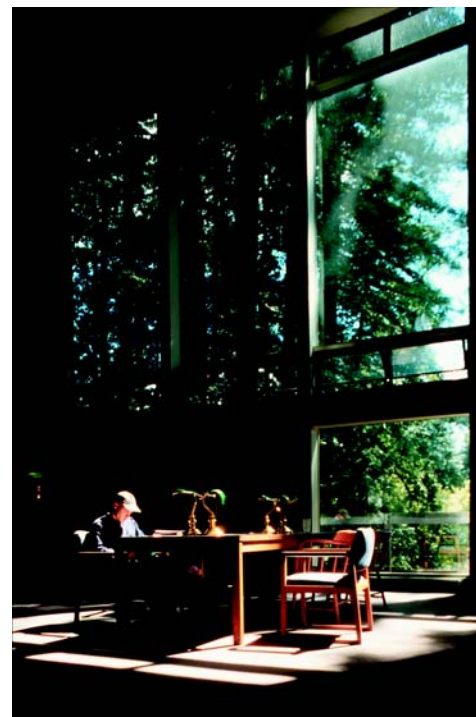
As a growing institution, our campus’s extramural grants would be expected to grow, simply because we have been adding additional research faculty. But last year alone, our faculty raised 17% more in extramural grant support than the previous year, whereas our faculty grew by about 4%. Our successes in both increasing gifts and contracts and grants revenue during the period since our last WASC review are apparent in the following table and are presented in more detail in the Office of Sponsored Projects 2002-03 annual report.

|                         | <b>93-94</b> | <b>02-03</b> | <b>% change</b> |
|-------------------------|--------------|--------------|-----------------|
| Gifts<br>(Development)  | \$5.8M       | \$22.7M      | +393%           |
| Grants and<br>Contracts | \$32M        | 79.5M        | +248%           |

The campus has pursued several strategies to increase its extramural grant funding. Among these we have:

- Invested in academic programs and collaborations between existing programs, particularly in interdisciplinary fields at the forefronts of knowledge and built around research institutes and centers of excellence for which there is clear faculty leadership.

- Created the support infrastructure that helps faculty successfully complete for awards (appointed a Vice Chancellor for Research, a Director for a new office of Intellectual Property and additional professional staff support for the office).
- Hired a few ‘catalytic’ faculty who are high-profile experienced senior professors who have the proven ability to write large project grants and manage large interdisciplinary projects such as the Center for Adaptive Optics.
- Increased the campus’s capacity to compete effectively for large, collaborative research projects. For example, through the leadership of the Vice Chancellor for Research, other members of the campus’ top management, and a team of faculty members, the campus was awarded (September 15, 2003) a contract to manage a ten-year, \$330 million national project to establish a University Affiliated Research Center (UARC) at NASA Ames in Silicon Valley.
- Through its collaborative planning process, the campus leadership has articulated a comprehensive set of incentives and strategies for achieving its goals for research distinctiveness.



## WASC Standard 4. Creating an Organization Committed to Learning and Improvement



*UC Santa Cruz conducts sustained, evidence-based, and participatory discussions about how effectively it is accomplishing its purposes and achieving its educational objectives. These activities inform both institutional planning and systematic evaluations of educational effectiveness. The results of institutional inquiry, research, and data collection are used to establish priorities at different levels of the institution, and to revise institutional purposes, structures, and approaches to teaching, learning, and scholarly work.*

### SHARED GOVERNANCE AND DECISION-MAKING

Like all campuses of the University of California, UC Santa Cruz has a very strong tradition of shared governance. Its Academic Senate represents the faculty in the "shared governance" of UC Santa Cruz. As mandated by the university's governing body, the Board of Regents, the Senate both locally and at the system-wide level, determines academic policy, sets conditions for admission and the granting of degrees, authorizes and supervises courses and curricula, and advises the administration on faculty appointments, promotions and budgets. This delegated authority makes the UC Academic Senate unique among faculty governments.

At UC Santa Cruz, the Academic Senate is organized into 20 committees that include senate faculty members, appropriate staff members and student members. The work of these committees is coordinated through the senate's Executive Committee. This committee is comprised of chairs of all the major senate committees and meets regularly with the administration. Both the Committee on Educational Policy and the Graduate Council have plenary authority over all academic policies and practices of undergraduate and graduate education whereas all other senate committees serve to advise the administration on issues dealing with budget, strategic planning and faculty appointments and promotions.

In addition to the senate committees, the campus' administration has organized an extensive array of

committees whose members include campus administrators, faculty at large and faculty representing relevant senate committees, staff and students. Among these are the Chancellor's cabinet which meets regularly with the senate executive committee, the Provost's Advisory Council, the Academic Planning Committee, Academic Support Planning Committee, Information Technology Committee. Faculty representing senate committees and ad hoc faculty members (nominated or vetted by the senate's Committee on Committee) sit on administrative committees as do student and staff representatives.

These administrative committees and several of the senate committees – particularly the Committee on Budget and Planning have been extremely important in the campus-wide strategic planning and budget process that has been described in Essay 3.

In addition to their representation and participation in both senate and administrative committees, undergraduate and graduate students participate in governance through their respective SUA (Student Union Assembly) and the GSA (Graduate Student Association). Both groups participate in the campus Student Fee Advisory Board that determines how money raised through student fees is spent annually.

## INSTITUTIONAL USES OF DATA – ASSESSMENT AND ACCOUNTABILITY

### Collection and Use of Institutional Data

Maintaining and improving educational effectiveness is greatly enhanced by the effective collection, dissemination, and use of institutional research data. The repository for most official campus data is the Office of Planning and Budget, which houses Institutional Research, Academic Planning and Analysis, Space and Capital Planning, Student Research, and Budget and Analysis units. In addition, many units across campus from Admissions and Student Affairs, to Academic and Staff Human Resources, and the Academic Divisions employ analysts who report and analyze data collected independently or are maintained in shadow systems.

Institutional Research provides a number of standard reports that are mailed or e-mailed to campus constituents and posted on the web. These include information on student enrollments, enrollment projections, Fall Fact sheets, admissions statistics, student retention and graduation, faculty workload, and course audits, as well as results of student surveys such as the annual freshmen survey, senior graduation survey and *ad hoc* surveys such as the National Survey of Student Engagement. In consultation with an *ad hoc* Institutional Research Advisory Group (the Vice Provost/Dean of Undergraduate Education (VPDUE), the Vice Provost of Academic Affairs (VPAA), Assistant Deans and analysts from across the campus), Institutional Research is developing web-based departmental profiles. These profiles will incorporate in one place a set of standardized metrics and consolidate existing data about workload, financials, faculty, and student information. These files will be available 24/7 to faculty leaders, administrators, and Academic Senate committees as they work together to provide programmatic assessment.

Additionally, information and analyses are provided directly to administrators, faculty members, or standing and *ad hoc* committees who request them to facilitate decision-making. A recent example of this kind of data-driven decision-making comes from the enrollment management arena. As a direct

result of the de-emphasis on enrollment driven resource allocation, and in preparation for selective admissions within the UC context, the VPAA and the Vice Chancellor organized a retreat on enrollment management for Academic Deans, Academic Senate Committee members and other campus leaders. At that conference, results from a survey of admitted students intending to enroll at UCSC (SIRs, Statement of Intent to Register) as well as those intending to enroll elsewhere (Non-SIRs) were presented. Survey results indicated that the availability of majors of interest and quality undergraduate education were extremely important criteria used in making a college choice to both SIRs and Non-SIRs. Academic reputation was also extremely important to non-SIRs but relatively unimportant to SIRs. Both SIRs and non-SIRs also rated the academic reputation of UCSC lower than that of some of its closest competitors suggesting that UCSC was less competitive in attracting more academically motivated students than we would like to be. As a direct result of this conference a number of efforts were undertaken to enhance the academic reputation of the campus and to recruit more aggressively the most talented students interested in the Natural Sciences. For example, an *ad hoc* faculty committee worked with the admissions office to change the nature of admissions publications to emphasize academics and de-emphasize campus beauty.

The academic senate Committee on Admissions and Financial Aid (CAFA), the body charged with setting admissions criteria, has been most directly involved with articulating plans to institute comprehensive review on the campus. With the explicit goals of moving the campus toward selectivity and enhancing student diversity, the committee spent much of the past year considering data and analyses supplied by analysts and researchers in Institutional Research and the Admissions Office. In addition to running simulations of various weighting models of the comprehensive review criteria on the potential pools of admits, the Office of Institutional Research conducted regression analyses to examine the relative predictive validity of admissions criteria on freshmen success. The

results of those studies were presented in an open forum and directly impacted the weighting decisions of the committee.

While this is an example of effective data-driven decision-making, the age of our systems and lack of integration has impaired our ability to share data as effectively as we would like with planners and decision-makers. To address this situation, the campus has been actively engaged in a twofold strategy to 1) upgrade older systems to improve processes and the accessibility and accuracy of the data, and 2) improve reporting capabilities with development of a data warehouse.

Perhaps the most intensive effort is focused on implementing a new academic information system. This application, planned for full implementation in 2004, will greatly improve the processes associated with admitting, enrolling, and assessing students. Immediate benefits are improved processes, more timely data updates, on-line data access for students, faculty and staff, and enhanced query and reporting capabilities. In the interim, the recent addition of student data into the data warehouse provides a great asset for more accurate assessment of real-time educational questions.

Questions that used to go unanswered because of inaccessibility of the data can now often be answered in less than an hour. This tool has been remarkably effective in quickly dispelling long-standing myths about what our students might be doing – and has replaced those myths with real information about what students *are* doing. A recent example is a question related to whether students in remedial writing sections might stand to lose financial aid eligibility if we reorganized the delivery of the course and eliminated the academic credits. A quick query on students in the data warehouse revealed that only a handful of the over 1,000 students taking the tutorial were at risk of falling below minimum progress standards for financial aid, if the credit was removed from the course. This finding almost instantaneously removed a misunderstanding that for years had been a major barrier to change.

The understated goal of the data warehouse is its role in integrating disparate data systems. The implementation a new system – SCIPI (Santa Cruz

Integrated Instructional Planning Information) illustrates the importance of this function. SCIPI will facilitate the accurate and timely reporting of faculty workload measures, but is fully dependent on the integration of data from three separate systems (payroll, student, and facilities. In combination these systems improve campus access to data and information, and facilitate data-driven decision-making

### **Assessment, Accountability, & Budget Allocation**

In a series of reports made both to the academic senate and to the campus during the budget process in which the campus has engaged over the past year, EVC/Provost Simpson clearly articulated the need for the campus to engage more widely in critical reviews of all its programs, develop both quantitative and qualitative measures and benchmark performance measures to determine if programs are meeting their goals as well as campus goals, and to link resource allocations with evidence-based demonstration of success in reaching these goals.

As he stated in one of these communications: *“The campus’ proposal to the Western Association of Schools and Colleges (WASC) affirms our intention to use the WASC review process, with its emphasis on accountability and evidence-based decision making, to improve both our graduate and undergraduate academic programs and to strengthen the campus and its capacity to collect and use data effectively, to disseminate information quickly and efficiently, and to incorporate evidence in the planning and decision-making processes. In a parallel way, the accountability agreements and regular program reviews in both academic and academic support units affirm the campus’ commitment to excellence. Such program reviews are necessary first steps in improving, restructuring, investing in, or phasing out programs that are no longer central to our vision or the needs of our constituencies or do not measure up to the campus standard. Such on-going review and outcomes-based assessment enables the campus to undertake “data-driven institutional reform” and is a cornerstone for maintaining the campus’ reputation for innovation.”*

In his October 2002 campus communication (“Looking Toward the UC Santa Cruz of 2010 – the Path to Implementation”), the Provost concludes by asserting that in future budget processes, that accountability and assessment will be key. Academic divisions and academic support divisions (e.g., Student Affairs, Business and Administrative Services Division, Division of Information Technology) will need to quantitatively and qualitatively demonstrate their success in reaching both campus goals as well as their own. During this past academic year, the campus has spent a great deal of time determining some of the indicators that can be used to measure progress against goals and to begin to structure their institutional data systems to provide regular data to all units on their performance. Although these indicators are still under discussion, some preliminary strategic indicators have been identified.

The need for the development of clear accountability measures and linking budget allocations to accountability metrics has become even clearer in budget discussions currently underway. As part of the “EBC process”, a “Measurement Team” has been working to (1) identify and present a measurement system to evaluate the campus’ progress toward achieving its goals, objectives and strategies; (2) develop key organizational measures; (3) create measurement collection tools, systems and processes; and (4) develop an implementation plan and timeline for collecting, reporting and publishing measurements. By the time of the WASC review in February, 2004, the work of this committee should be finalized and made available to the WASC visiting committee. Currently the efforts of the Measurement Team have been focused around identifying metrics from the financial, quality, internal process and institutional learning and development perspectives around five strategic objectives identified by this process. These are: (1) to be recognized as the finest public research university in the nation for undergraduate education; (2) to create a nationally recognized and highly distinguished graduate program; (3) to strengthen research and scholarly accomplishments and distinction; (4) to serve the public through the application of knowledge and the engagement of our local, regional and state communities; and (5) to optimize the efficiency and effectiveness of our

operations to provide infrastructure that supports sustainable and scaleable instruction, research and service.

### **Program Review as Evidence of Commitment to Excellence**

The WASC process currently underway, as well as the strategic planning and budget processes in which the campus has engaged all clearly reveal that every campus unit should be doing a better job at using data to evaluate critically divisions, departments, their programs and curricula. In response to this, both the academic senate and the administration has been working together to develop better review procedures (including defined metrics of assessment), and the information data required for assessment.

#### **Existing review protocols:**

The campus insures self-reflection, planning, and high quality in academic departments by conducting rigorous, periodic reviews. These reviews are led by the Vice Provost, Academic Affairs, and involve all levels of the campus administration, as well as the academic senate. The existing review protocols, although rigorous and effective, are now themselves under review and will soon be revised to increase their effectiveness.

The existing review process begins with a request by the respective dean to the department to begin preparing a self-study, according to well-established guidelines. Simultaneously, the dean circulates a draft charge to the relevant senate committees for their review advice. At that time the dean also prepares a slate of potential reviewers, for final approval by the VPAA. Once the charge and the reviewers are approved by the VPAA, a two-day site visit is scheduled. During the site visit the external review team meets with departmental faculty and staff, undergraduate students, and graduate students. An entrance interview is held among the team, the academic dean, and the VPAA; and an exit interview is held among the team, the provost, and the VPAA. When the campus receives the final report, the dean circulates it among the senate committees for their written comment and to the department chair for written comment. A closure meeting is then

convened by the VPAA, comprising the department chair, the dean, representatives of senate committees, and the VPAA. The closure meeting is an opportunity for setting the record straight on factual matters, and for memorializing key differences in perspective by the relevant parties. The closure meeting is followed by a closure report written by the VPAA, and takes the form of a letter to the campus provost. The closure letter contains a list of follow-up questions that need to be answered by the department and the division 18 months subsequent to the closure meeting.

***Critique of existing protocols:***

The existing procedures have served the campus well over the years, but nevertheless can be significantly improved. The process is sufficiently cumbersome that the time interval between the initiation of the self-study and the final closure meeting is frequently too long to be as helpful as it might be. The existing procedures also limit the effectiveness of the senate in the review process, because the senate does not have access to the self-study during the time that it is reviewing the charge. Finally, the process often leads to a charge that is so diffuse that the review team has no real guidance to any serious departmental issues.

***Revised protocols:***

Although the task of program review is an administrative responsibility, the administration is working closely with the Senate to determine how we might improve review procedures. Pending completion of final discussions currently underway between the Vice Provost of Academic Affairs and the appropriate senate committees, a revised procedure will be introduced beginning with the 2004-2005 review cycle, with the following improvements:

1. A standard charge will be adopted.
2. the self-study guidelines will be streamlined, and the work will be divided among the department, the division, and the Office of Planning and Budget.
3. Prior to the review, the senate committees will be furnished with the department's self-study and will be asked to submit a letter addressing their specific concerns, if any.
4. Minimum standards for the review agenda will be established, including meetings with undergraduate students, graduate students, the undergraduate curriculum committee, the graduate

curriculum committee, and the chairs of departments served by the department under review.

5. The Office of Planning and Budget will survey undergraduate and graduate students and the responses will be included in the self-study.
6. Senate committees will be invited to submit candidate questions for the 18-month follow-up review as part of their response to the review report.
7. The responses to the 18-month follow-up report will be sent to the relevant senate committees for their (optional) comment.
8. The senate will be asked annually for their written commentary on the effectiveness of the review process, so that the process may be continually improved.

We believe this new process will streamline the review and increase the effectiveness of the review team during their brief visit. In a prototype experiment, we have conducted a review of the mathematics department academic programs, where we have led web-based surveys of undergraduate majors, graduate students, and students in the school of engineering served by the mathematics department. The return rate was high enough that we learned much about the instructional programs that would otherwise have been inaccessible.

A specific outcome of the mathematics review has been the establishment of a centrally-led mathematics curriculum committee charged with (1) overhauling lower division mathematics curriculum, including individual course curricula, pre-requisites, and outcome expectations for a passing grade; (2) developing standards for instructor qualifications and instructor review in the curriculum; and (3) developing standards for placement into courses. This committee began meeting in August 2003, and intends to complete its preliminary objectives in time for catalog inclusion for the 2004-05 academic year.

The overhaul of program review procedures described above is but a first step in transitioning to a more evidence-based assessment model that might be much more similar to the current WASC review process. Accordingly, programs and departments might be asked to develop topics

upon which they will focus during the review process to improve their program. Departments would be asked to provide evidence that they are “prepared” to provide their programs and that they are “educationally effective”.

A transition to this more evidence-based model would require that departments be provided with the data required for their self-analyses and accordingly, we will need to develop the data-bases required for departments and programs. These data will be provided annually to each department’s electronic portfolio. The work of one of the EBC Process, the Curriculum Management Team – is providing the campus with a process by which appropriate data would be assembled and used for academic planning.

In their current vision (their work is in progress and their results will be available to the WASC review committee during their February, 2004 visit), the cornerstone of academic planning would require the development of departmental profiles which would be used both to help a department assess its success and to frame resource allocation decisions. These profiles, organized electronically, would include the following components:

1. *Basic identification data* – i.e., department name, division, department chair, date of establishment, list of programs.
2. *Historical Data Spreadsheet* displaying ten years of data in the following categories: Faculty and staff, course delivery, retention, graduation, academic progress, majors, degrees granted, course enrollment, student FTE, faculty workload, contract and grant income, graduate student support, graduate student quality, facilities and equipment, faculty ranks and age, NRC (and other) rankings of departments and programs, appropriated funds, and expenditures.
3. *Profile summary*. A analyst would provide a few paragraphs summarizing how the department is similar to or distinct from other departments, typically highlighting the department’s unique strengths and weaknesses. For example, the analyst might point out that the department enjoys a very high national ranking, captures above average contract revenue, but is light on undergraduate majors and course enrollments. These conclusions would be drawn directly from a summary chart –

Comparative Departmental Characteristics –and four attached graphs (budgeted faculty versus student credit hours, average class size, distribution of teaching load, and expenditures by category.

4. *Department Chair’s Statement*. This will allow each unit to summarize its strategic direction and distinctions. Initially, this text will be taken from existing department plans, to avoid placing additional burdens on departments.

5. *Established Departmental Goals*. This section will allow each unit to choose possible goals along with measurements they will emphasize in the near term future. These goals would those that a department would pursue as part of their program/department review process.

### **Assessment of Learning Outcomes**

A WASC report from UC Santa Cruz would not be complete without discussion of our current student assessment system. Since the last WASC review, we have made significant changes in how we assess and report the progress of students.

Extensive discussions have taken place about the strengths and weaknesses of conventional grading systems and the assessment system of narrative evaluations for which UC Santa Cruz is known. We now have what the *Chronicle of Higher Education* described as the most rigorous and thorough student assessment system in the country – students receive both a letter grade (A+ - F for 75% of course work and up to 25% may be taken for pass/no pass) and a “performance evaluation”.

The faculty supported this change overwhelmingly for several reasons that were related to assuring student success and fostering learning and teaching. Grades provide us with a more timely and concise report that enables us to track the progress of students and to identify students who may be in need of additional academic support. They also have become required by several state, federal and private agencies providing financial aid to students. We implemented grades to make sure that our students would not be discriminated against by these funding agencies. However, through the debate and the ultimate decision to require grades of all our students, the faculty stayed firm in their

collective conviction that performance evaluations provide a more useful tool for assessing students. Even considering the additional workload that our faculty confront in writing nearly 130,000 evaluations each year, over two-thirds of our faculty voted to retain the system because of its pedagogical value. We have been developing software tools for faculty to help reduce some of the workload encountered in preparing and submitting the evaluations. These tools have been warmly received by the faculty and are being used routinely by more than 50% of instructors.

To ensure instructional quality the senate's Committee on Teaching (COT) works in partnership with VPDUE and the Center for Teaching Excellence to provide policy guidelines, models, and necessary support to departments and individual instructors to evaluate both their courses and their teaching. Student evaluations of instructor's teaching and course design are used extensively throughout the University in the personnel process as well as providing individual instructors useful information that effects positive changes.

The Center for Teaching Excellence, in addition to providing curricular and instructor evaluation tools, is also very active in providing in-class evaluation of teaching. The director of the Center visits classrooms upon request of the faculty and videotapes the class and works with the faculty member to determine how to improve teaching and learning. The Center works with new faculty members and with graduate students, providing them information and advice on teaching practices and how to improve learning. Faculty and graduate students use the services of the Center extensively across the campus.

In addition to course evaluations the campus has participated in several national surveys which are designed to measure the academic engagement of our students. In 2000, UCSC was the only UC campus to participate in the inaugural launch of the National Survey of Student Engagement. The results of this survey, which can be found at, suggested that UCSC students demonstrated higher than typical levels of academic and intellectual engagement. We will participate again in this survey in the current academic year.

Not content to simply report benchmark scores we are currently involved in the UCUES (UC Undergraduate Experience Survey) project. This seeks to understand the relationship between dimensions of student engagement and learning outcomes throughout UC. Ultimately, as a result of our involvement with the project, we hope to gain a subtler understanding of the relationship between admissions criteria, various dimensions of student engagement, and positive student outcomes including retention and graduation, and alumni success. To complement the data we are collecting as part of UCUES, this year we instituted an annual survey of graduates to assess satisfaction and involvement in those activities fundamentally important to the education provided by a research university, such as research, community service and internships.

In addition to these surveys, we have recently completed an extensive on-line survey that will be required of every graduating senior. This year we inaugurated the survey; although it was not mandatory, nearly 50% of graduating seniors completed the survey. The data we sought examined their satisfaction with advising, facilities, faculty, their curriculum, general education, writing, internships and research opportunities and many other things. The results of the first survey, as well as this year's survey will be included in our educational effectiveness analysis.

As part of an articulation of concrete student learning outcomes, some majors have developed community advisory committees to advise faculty leaders on program assessment and future development. For example, the School of Engineering is forming a corporate advisory board, the Education department consults continuously with K-12 Teaching professional community, and new program proposals are required to identify non-academic professional options for graduates.

As we prepare for the Educational Effectiveness Review, we are taking the first steps toward developing a centralized plan for identifying and collecting direct student learning outcome data. Efforts, led by the VPDUE, are already underway to assess the Freshman Experience and to ensure

that freshman learn foundation skills, acquire collegiate culture integration, and have pedagogical contact with ladder faculty.

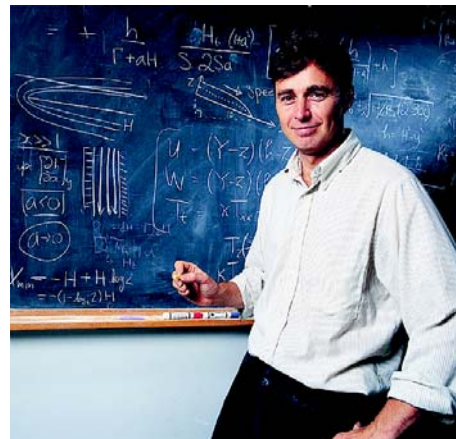
Based on the great successes of Duke University's "Curriculum 2000" reform of general education, the VPDUE is beginning discussion with the senate's Committee on Educational Policy about how we assess the educational effectiveness of our general education curriculum. This will be discussed in more detail as part of the educational effectiveness review. In summary, we are beginning a process to redefine the educational goals and objectives of each of our categories of general education courses. We will then develop specific evaluation forms of each course type and ask students to evaluate the course with respect to the defined learning outcomes that are based on the objectives for the type of general education course.

These evaluations will be designed to include both quantitative assessments of defined educational outcome criteria as well as provide opportunities for students to comment qualitatively. The quantitative assessment will be used to compare courses of the same type. For example, courses that satisfy writing 1 will be compared to determine how well they reached common objectives that will be based on learning outcome and decided upon by a committee of faculty from across the campus as well as our writing lecturers. We will then compare the nearly 150 "writing 1" (basic composition) classes according to how well they met the objectives. We will examine the standard deviation around the mean for each criterion, thereby being able to determine courses that are not meeting specific criteria, and others that surpass the mean and may thereby provide best-practices to others.

We will utilize the newly formed undergraduate curriculum committee on mathematics to articulate concrete outcomes of the introductory math curriculum (through calculus) and develop tools for assessing those outcomes. We are examining common assessment methods for all students in math courses with the objective of not only evaluating the student's learning, but also, the effectiveness of teaching by individual instructors. As such we will have a measurement of how well different instructors do in teaching materials and we will have data to help us track if changes we make in

programs or curricula have positive, negative or no impact over time.

As part of the process of developing measurements of curricular effectiveness, we will look at the possibilities of using some of the assessment tools offered by ETS. We will work with the writing faculty and the campus in general to examine the new Criterion<sup>SM</sup> Online Writing Evaluation Service and determine if this tool might be useful in assessing learning outcomes of students with respect to their writing skills. We will examine if and when this test might be administered, and how the institution will be able to use the data from the assessment to improve its writing programs. We will also work with departments including mathematics, biology, psychology and others to determine whether some of the tests available in these subject areas might be useful to programs in assessing their educational effectiveness.



*Neil Balmforth, Associate Professor of Applied Math and Statistics, teaching his undergraduate course on Chaotic Dynamical Systems.*

## WASC PREPARATORY REVIEW CONCLUSION



*"We believe that a young, public university can achieve greatness in both research and teaching if we set our goals carefully and pursue them with zeal."*

UCSC at a Crossroads: Advisory Report of the Millennium Committee

The Preparatory Review stage of the WASC accreditation process has provided UC Santa Cruz with the opportunity and the incentive to rearticulate our institutional goals and objectives, to examine what we have accomplished during our nearly 40 year history as an educational institution, to examine how we use data to help us learn about our institution, and to improve our practices and define the next steps that our campus will pursue to make our institution even stronger. Writing and reviewing the reflective essays that addressed the four major WASC standards provided our community, many of whom have never gone through an accreditation review, the opportunity to think more carefully about our historical educational roots, discuss our strengths and weaknesses, and learn about the major strategic planning that has been underway to help shape the UC Santa Cruz of tomorrow. Even the assembly of the myriad of policies and procedures required by WASC, and the process of analyzing these documents to determine how they provide evidence in support of WASC's specific standards, provided a learning experience for us; the resulting electronic portfolio of these documents will be regularly updated, and will be an invaluable resource for the campus in the future.

In many ways, UC Santa Cruz is at a crossroads. While continuing to strengthen what are already some of the best undergraduate programs of any public research university in the nation, we are now focusing on expanding our graduate and research programs. We plan to increase graduate student enrollments to a target of about 15% of our total student body. This will require an approximate doubling of our current graduate students. We are determined to do all this while remaining a leader in undergraduate education.

While our goals and objectives are clear, we recognize that we face many challenges. The first of these challenges is that, as a University of California campus, we have a responsibility to provide access to

the children of California. As the population of California continues to increase, and as the pool of students qualified to attend the University of California expands, all UC campuses face continued pressures to increase their enrollments – and most of those pressures center on increasing the numbers of undergraduate students.

Accordingly, we, like many other UC campuses, are fast-approaching the enrollment target that was agreed upon during our last Long Range Development Plan (LRDP). This plan, which was agreed to by both our local community and by the UC Regents, called for growth to a total enrollment of 15,000 students on campus over a three quarter academic year. We currently are beginning a new LRDP process to determine what our enrollments might be in 2020, and how our institution and our community will accommodate growth.

Even with such growth, however, the success of the educational programs of UC Santa Cruz leads us to anticipate that we soon will not be able to admit all qualified students seeking admission. We will therefore begin comprehensive reviews of all students who apply, and make decisions that are governed to a large degree by policies of the State of California (State Proposition 209) which exclude the use of racial data in admissions to UC. We are committed to increasing enrollments of qualified underrepresented students as we have been during the past years. Our success in increasing these enrollments is no doubt a reflection of the campus's creative and successful outreach activities that have targeted children as young as second grade, and that have worked with both these children and their parents to help them aspire to a UC Santa Cruz education. But this success is challenged by UC budget cuts that have specifically targeted such outreach programs.

Like all other state-supported research universities in the U.S., we face major budget problems that are both severe in the short term and will likely have long-term impacts. Because of the overall trend of decreasing

state support of public higher education, institutions must both become more efficient and find other sources of revenues. We have been successful in offsetting much of the long term decline in state support by increasing both our gift and grant support, and the UC Regents have compensated somewhat by recently increasing student fees and tuition by about 30%, after a decade of little or no fee increases. Even though about one third of the increased funds will be used for financial aid, this will lay greater financial burdens on many of our students and their parents.

Expanding our graduate programs and enrollments in times of increasing undergraduate enrollment pressures and declining state revenues poses additional challenges. Even though the UC Regents have articulated a goal of increasing graduate students at UC, as a system, the system's graduate enrollments have continued to decline over the last decade. This may be attributed to the systemwide change in support of graduate education that occurred roughly a decade ago. Whereas UC campuses once received 2 to 3 times the support for a graduate student as they did for an undergraduate student, in order to help offset the additional costs incurred in graduate education, campuses now receive the same level of state support for all students. We face the challenge of building our graduate enrollments to 15% of our enrollment when per student state support made available for graduate programs is significantly less than when our sister campuses built their graduate programs.

But there are many opportunities for our institution, as well as challenges. We have the opportunity to develop new graduate education programs that will meet the needs of today's graduate students and prepare them for the careers of tomorrow. As we discussed in our Institutional Proposal to WASC, a recent survey of 32,000 graduate students from all academic disciplines concluded that, while most graduate students are very satisfied with the specific training they are receiving in their own academic disciplines, they also desire additional training in areas other than their research specialty to make them competitive for positions after their graduate education. As part of our Educational Effectiveness Review, we will examine what programs might best serve these needs of our graduate students, and we will look at whether the living/learning model of our undergraduate residential college system might be adjusted to meet the needs of our graduate students. In developing new graduate programs, we will

provide additional opportunities for our undergraduate students to participate in new educational and research programs, and to learn from and be inspired by our graduate students.

Although national, UC, and local surveys support the conclusions that our undergraduate students are highly satisfied with their academic programs, we must continually examine our curricular and co curricular programs to be certain that we are doing the best job that we can for our students, with the resources available. Accordingly, as part of our Educational Effectiveness Review, we will examine our freshman experience and the role of our colleges in presenting the skill-development courses required by our students – including writing, critical thinking, public discourse, and the use of technology. We will examine our capstone experiences for seniors to determine if these are meeting our institution's educational goals. We will determine if there may be better ways to measure learning, and develop metrics to measure whether changes in programs and courses result in improvement. And we will look at our academic programs that occur outside of the traditional classroom, including academic advising, internships, and research opportunities, to determine if these meet the needs of our students and the educational priorities of our institution.

In addition, the challenges of accommodating more students with limited resources will require us to examine how we might make more effective use of instructional technologies to improve both learning and the cost-effectiveness of our educational practices. We will examine how instructional technology might augment the educational experience in large lecture format courses, providing more individualized interactive learning in concert with the lecture-based learning format characteristic of most large courses. And we will continue to examine how technology may be employed to measure learning outcomes and diagnose levels of knowledge, thereby providing better placement of students in appropriate courses.

Lastly, we will develop better methods to assess faculty teaching effectiveness, curricular design and integration, and overall program quality. The nearly real-time data that is now made available by the Office of Institutional Research provides us with powerful assessment tools that can help determine whether changes we undertake to improve teaching and learning are successful. As an institution, we must refine the data we use to evaluate our programs, make resource allocation decisions, and provide the detailed assessments that will be required in the future.