UC Berkeley
Institutional Self-Study
For Accreditation

Submitted to the Western Association of Schools and Colleges (WASC) under the Pilot Cohort 2 Handbook

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The Institutional Context [CFRs 1.1, 1.4]

The University of California, Berkeley, is an academic community of scholars committed to the creation of new knowledge about society and culture, to scientific discovery, and to defining the intellectual debates of our time. These endeavors are sustained by the University of California's policy on Academic Freedom which, by extension to UC students, enables the University to foster in its students a mature independence of mind. As stated in the University's Mission Statement, we approach these goals with the firm belief that we achieve them through synergies of excellence in research, in the teaching and mentoring of undergraduate and graduate students, and in service to both the intellectual communities we lead and to the people of California, the U.S. and the world.

In addition to the University of California's ten campuses, public higher education in the state includes the 23 campuses of the California State University (CSU) System and the 112 campuses of the California Community College System, as well as two independent public institutions. The California Master Plan for Higher Education, adopted by the state in 1960, expanded opportunities for higher education and helped to integrate the missions of these colleges and universities in meeting the educational needs of Californians.

The Master Plan designates the University of California (UC) as the primary state-supported academic research institution. It also gives UC exclusive jurisdiction in public higher education for doctoral degrees (with the exception that CSUs can award joint doctorates) and for instruction in law, medicine, dentistry and veterinary medicine.

The Master Plan also established an admissions principle of universal access and choice, assigning UC to select its freshmen students from the top one-eighth (12.5%) of the high school graduating class and CSUs from the top one-third (33.3%). The California Community Colleges were to admit any student capable of benefiting from instruction. The Master Plan was subsequently modified to provide that all California residents in the top one-eighth or top one-third of their high school graduating classes who apply on time be offered a place somewhere in the UC or CSU system, respectively.

The community college transfer function is an essential component of this commitment to access. Under the Master Plan, UC and CSUs set aside upper division places for eligible California Community College students and give them priority in the transfer admissions process.

Historical Overview

The University of California was founded in 1868, following a provision in the State's constitution (1850) requiring the legislature to create a state university. The establishment of the University of California also benefitted from President Lincoln's signing of the 1862 Morrill Act, mandating the creation of land-grant colleges and universities to broaden access to higher education. Until 1919, the University of California had one comprehensive university campus: the Berkeley campus.

Our land grant roots formed many of our basic values, including our commitment to access and excellence and to serving as an engine of social mobility for the citizens of California and for students from other states and countries. By the early 1900s UC Berkeley was recognized as a center of excellence. In 1934, a national survey ranked Berkeley as having as many "distinguished departments as any University in the country."[1] This broad commitment to leadership across the major areas of scholarship—physical and biological sciences, engineering, social sciences, humanities, the arts and many modern professions continues to be a source of pride to the campus. In 2010, 40 of the 52 Berkeley graduate programs reviewed by the National Research Council had rankings with ranges in the top five in the nation, and 48 were in the top ten.

Many factors contribute to Berkeley's comprehensive excellence, and we highlight those we view as most important to the educational experiences of our undergraduate and graduate students.

The Public Character of Berkeley [CFRs 1.5, 1.6, 1.7]

UC Berkeley is among the world's leading universities, but we owe our existence and character to our designation as a public trust of the State. Despite the State's considerable disinvestment in UC, we acknowledge gratefully the years of investment that the people of California have made in our infrastructure, faculty and students. As a public institution, we are held to the highest standards of transparency and accountability, and we embrace those values and responsibilities. Numerous studies show that the state receives an excellent financial return on its investment (see "California's Economic Payoff: Investing in College Access & Completion"). These studies identify patents, new companies, and ideas that emerge from research at the University. They show that individuals who attain degrees at Berkeley are economically successful, providing revenues to the state through taxes that more than pay for the State's investment in their education. While it is more difficult to measure the social, political, and cultural benefits the university brings to the state and to our community, these aspects of our mission are no less important. We expect our students to leave Berkeley with the capacity to continue to learn and develop, to engage in intelligent discourse, to question and challenge convention and to contribute to the political, cultural and artistic vibrancy of their communities either as practitioners, participants or patrons. The education of our students occurs not only in the classroom, but also through residential life experiences, including a multitude of student organizations, world renowned arts programs such as Cal Performances, museums, and public lectures in every discipline.

Faculty Shared Governance [CFRs 3.8, 3.11, 4.1]

As an institution, we pride ourselves on the excellence of our faculty—their spectacular research achievements, the lifelong successes of their graduate and undergraduate students, whom the faculty teach through seminars, lectures, studios, labs, and one-on-one mentoring. In large measure this excellence is derived from two important aspects of our campus culture. First, unlike universities that hire many of their faculty at the tenured level, UC Berkeley has long chosen primarily to hire the most promising junior faculty and nurture them to become preeminent in their chosen fields. In other words, we typically hire at the junior level and "grow our own," rather than recruit senior "stars" in their fields. For every new hire who meets the

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[1] Pelfrey, Patricia A., *A Brief History of the University of California*. Second Edition. Berkeley, CA: University of California Press, 2004. pp. 29-30.

University's standards for tenure, a tenured position is available. As a testament to the success of this culture, approximately 70% of junior faculty members who have come up for tenure have received it. Second, our strength as an institution is based on a model of shared governance first brokered in 1920, in which faculty "acquired a greater influence in the educational aspects of university administration than any other faculty in the United States" (Eighth All-University Faculty Conference, "The Two Structures: Faculty Self-Government and Administrative Organization," April 1953) and codified under the [Standing Order of the Regents 105.2](). Among other responsibilities delegated to faculty are those for establishing curricula at the course and degree levels and for evaluating the effectiveness of these curricula in achieving the aims of undergraduate and graduate education: expertise in a discipline, the ability to think critically and creatively, and the skills needed to write for audiences within and outside the academy.

The system of shared governance between the [Berkeley Division of the Academic Senate]()[2] and the campus administration is a model for collaborative institutional management. Faculty and academic administrators (most of whom are hired from within the Berkeley faculty) jointly review each faculty appointment and promotion and each department and program; the Senate and the administration also collaborate on larger institutional projects and strategic planning that keep the institution forward-looking and responsive to changes in both the intellectual and pedagogical landscape.

The partnership between administrators and the Academic Senate is emblematic of UC Berkeley's broader culture of distributed responsibility. This distributed organizational culture is both an institutional strength and a challenge. At the time of our last accreditation, the WASC Visiting Team, led by David Ward, commended us for our many innovative programs. The team saw a thousand flowers blooming, representing the entrepreneurship of our faculty and their commitment to students. At the same time, it urged us to scale up our efforts into an integrated whole that would be greater than the sum of its parts. The core of our strategy in sustaining our institutional vision is to establish a culture of excellence and ambition that is deeply ingrained in our faculty and is transmitted to students and encouraged in staff. As an institution, we then expect leadership in teaching and research to emerge from the efforts of individual faculty who are then supported at the decanal and institutional levels of the campus. The role of the central administration is to support local faculty innovation, to foster contact among faculty who have established new programs or ideas, sometimes across different academic units and disciplines, and to identify innovations to scale to the campus level. In the decade since our last institutional accreditation, we have made great strides as a campus in fostering and supporting individual entrepreneurship and innovation while identifying strategic areas for enterprise-level, campus-wide initiative and investment. These will be documented in the sections that follow.

Comprehensive Review [CFRs 2.4, 2.7, 3.5, 4.4, 4.6]

We maintain our excellence through systems of constant vigilance, ones that integrate manifold indicators of individual, programmatic, departmental and institutional success. Beginning with the student admissions process, we focus on "comprehensive review." That is, for undergraduates, we look at academic performance and other cultural indicators of their capacity for success at Berkeley such as essays, obstacles overcome, extra-curricular activities and work, and, for graduate students, we include research experience, test scores, letters, essays, obstacles overcome and a range of other variables to assess students' potential to succeed at Berkeley. Similarly, upon graduation, we view our students' success not by the extent to which students

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[2] From this point forward, references to the Academic Senate or the Senate indicate the Berkeley Division.

have mastered key facts but by the growth of their ambitions, their success in their chosen field and their life-long love of learning. When we evaluate our faculty, departments and programs we also use multifaceted approaches. The multiple mechanisms by which we maintain, uphold and perpetuate comprehensive excellence will be examined in detail in this document.

Financial Sustainability [CFRs 1.3, 3.5, 4.1]

For decades the investment by the State of California was sufficient for the University to thrive while keeping costs to its students among the lowest in the world. In effect, the State annually provided the equivalent of an endowment payout that rivaled that of the great private institutions. This is no longer the case. UC Berkeley is now supported primarily by federal grants, tuition and student fees and philanthropy with a small (~12%), but critical, supplement from the State of California. Some of this change has been incremental and occurred over a period of decades, but the rate of reduction has increased significantly during the past three years. The campus has recognized for some time that it needs to raise significant contributions from philanthropists and alumni if it is to provide state-of-the-art facilities and to attract the most talented students and faculty, and we have been increasingly successful at such fundraising. The recent financial crisis also encouraged a renewed focus by the campus on the ways in which we build and maintain core infrastructure, including the buildings and information technology that support teaching and research. It has also inspired a re-examination of the ways we organize and reward personnel in our efforts to maximize efficiency and improve job satisfaction across the campus. One outcome of this rethinking is Operational Excellence, a new program initiated by Chancellor Emeritus Robert J. Birgeneau to guide strategic investments that will lower operating costs over the long term. Operational Excellence aims to improve core services to faculty and students and to channel savings into activities that are our primary mission—teaching, mentoring, research and service.

As discussed in detail in the essay on financial sustainability, the radical reduction in state support for higher education is a challenge we have weathered successfully. The passage of Proposition 30 last November avoided further draconian cuts and helped solidify our current financial status. Nonetheless, sustaining access and excellence will continue to be a challenge, as student demand for higher education increases, as the need to provide services for a changing, ever more diverse student body increases, and as the costs associated with maintaining an internationally-ranked, first-tier research university continue to grow. To meet these challenges we are using a multi-pronged strategy which is elaborated in the essay on sustainability.

Institutional Priorities and Strategic Plans [CFRs 1.3, 1.5, 3.2, 3.10, 4.3, 4.6]

Campus strategic planning efforts have been guided since our last accreditation review by three key documents. The campus Strategic Academic Plan, completed in 2002, was comprehensively reviewed in 2007-08. At the time of the five-year review, the campus had made substantial progress in all eight areas of focus, as detailed in the report.

In 2008, Chancellor Emeritus Birgeneau rededicated our campus to a vision of Access and Excellence, extending key themes of the Strategic Academic Plan and coalescing a vision that has guided the campus for the last seven years, which includes the following goals:
- ensuring the excellence of Berkeley's faculty; advancing our research leadership; attracting the top echelon of graduate students; ensuring our commitment to excellence in teaching;

- maintaining our commitment to access through a sustainable financial aid strategy that provides access for students from low-income families and increases affordability for middle-class families;

- supporting our students' success outside the classroom so that they are thriving not only in their academic pursuits but also in their development as engaged citizens;

- continuing to effect transformational and lasting change to become a highly inclusive institution;

- supporting academic pre-eminence through world-class administrative operations, and a facilities and technology infrastructure befitting a leading university in the 21st century.

As part of a more nimble planning process described below, this vision and its goals are reviewed regularly as part of the Berkeley campus's two-year goals (see Appendix A), which are reconsidered and refreshed annually at the Chancellor's Cabinet Retreat in August and submitted to the University of California Office of the President. The two-year goals document tracks our progress toward the five goals articulated above through a specific set of indicators that are revised and tracked on an annual basis.

In keeping with trends in higher education more broadly, the Berkeley campus is moving away from a ten-year strategic planning cycle to a more responsive approach to budget allocation and strategic planning, one that is continually reassessed in light of up-to-date information. Early in Chancellor Emeritus Birgeneau's tenure, he realized that radical reductions in State spending on UC would imperil Berkeley's excellence unless the campus invested in financial management tools and leadership to develop and support this more nimble approach to strategic budget planning. Under the aegis of the Vice Chancellor for Administration and Finance, Berkeley launched a new set of budgeting tools and concepts, shifting campus planning processes from an incremental annual review of a small portion of the funds provided by the state to an all-funds, strategic view of the budget spanning several years. In addition, the development of a unified, campus-wide financial model has provided Berkeley with the capacity to provide credible projections and model the impact of different scenarios. In FY 2013, under the auspices of Operational Excellence, the campus launched a new budgeting system, CalPlanning, aimed at providing strategic financial information and a common financial vocabulary and planning environment to both central campus and unit leadership. The resulting detailed accounting of the campus operating budget is consistent with the campus-wide financial model and operates as a crucial tool to provide line managers with the information they need to make informed strategic decisions. The new system will bring an unprecedented level of financial planning capability to the Berkeley campus. It enables the campus to respond quickly to changing priorities and to provide incentives to encourage expense control and revenue growth; to better align resource management with campus priorities; to transform the financial organization and increase financial acumen; and to maintain ongoing financial discipline and use performance metrics to make the decisions and guide action, along with maximizing current analytical applications. The UC Berkeley Business Plan includes working with federal and state governments on creative models for reinvestment in the campus and for covering growing costs, such as pensions; working with the UC Office of the President to allow greater latitude for financial management and capture of revenue streams at the campus level; and working with campus units to build fundraising capacity.

In 2007, Chancellor Emeritus Birgeneau also created the new Division of Equity & Inclusion, headed by a vice chancellor. This division completed a Strategic Plan for Equity, Inclusion, and Diversity in 2009 to guide the campus (faculty, students, and staff) on these topics in particular. One of the results of this campus plan is that all individual academic and administrative units are incorporating elements from the campus plan into their own strategic plans. The issues included in these plans range from diversity of students, staff, and faculty, to unit climate, to increased and equitable pathways to success. These principles have also now been embedded into the Academic Program Review process (described in more detail later), and representatives concerned with these issues have been added to the review committees.

On June 1, 2013, Nicholas B. Dirks assumed office as UC Berkeley's 10th Chancellor and joined the faculty as a Professor of History and Anthropology. Dirks's path-breaking, cross-disciplinary work as a scholar is matched by the intellectual independence and innovation he brings to administrative problem-solving. His approach is tempered by an appreciation of the political and economic complexities surrounding the restructuring of institutions of higher education to maximize excellence in teaching and learning, research, and public service. In interviews, Chancellor Dirks has made clear that he will continue to support the hallmark of Access and Excellence of the previous administration with special attention paid to easing undergraduates' transition to higher education and undergraduate teaching and learning; sustaining our position of leadership in graduate and professional education; connecting cutting-edge research to the public good; and welcoming and supporting diversity and difference. He is also committed to the campus's goal of achieving financial sustainability and, in collaboration with campus leadership, will continue to seek creative ways to generate savings and new revenue streams for the campus.

Other Institutional Values [CFR 1.1]

UC Berkeley's institutional values are exemplified in three important statements that were collaboratively developed by the campus community and that guide and inform the culture of the University. UC Berkeley reaffirmed the University's Mission Statement in its Principles of Community. The Principles were created through a collaborative process over a two-year period (2003-2005), led by the Chancellor's Community Initiative in partnership with student and staff organizations, the Academic Senate, administrators, and the California Alumni Association. This effort arose out of many requests to bring the campus community together to discuss the core values, or principles, of Berkeley. In the process, students, faculty, staff, and alumni participated in many focus groups and in a campus-wide survey that also reached 350,000 Berkeley alumni. The Principles of Community have since been widely used as orientation materials for new students, staff, and faculty, and as a tool for building behavioral and community standards in departments, dorms, and offices.

In the past year, the Associated Students of the University of California (ASUC) participated in developing and implementing a campus Honor Code, in conjunction with the Graduate Assembly, the Academic Senate, and the Letters and Science Deans and many senior administrators. The Honor Code states quite simply: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." The purpose of the Honor Code is to enhance awareness that the highest possible levels of honesty, integrity and respect on campus, are expected of all members of the academic community, both within and outside the academic context. Students were motivated by the belief that, as the nation's preeminent public university, UC Berkeley should raise the bar for academic integrity, especially in the digital age.

In pursuit of excellence among staff, the Operating Principles project, an Operational Excellence initiative, engaged the campus community this past year to collaboratively develop a set of principles to guide how we work together to support the academic mission. These principles – "We include and excel, together," "We imagine and innovate," "We are accountable to each other," "We simplify" and "We focus on service" – guide administrative efforts and are being integrated into recognition programs, recruitment and hiring, staff development, and unit-driven change projects. We now provide all applicants for staff positions with the statement of Berkeley's Workplace Culture.

Accreditation History [1.9]

The Berkeley campus has been fully accredited since 1949 and had its accreditation reaffirmed most recently in 2004. In its recent commission action letters to the institution, WASC has focused almost exclusively on (1) the need for a more comprehensive campus-wide commitment to assessment, emphasizing direct assessment of student learning; (2) the view that using academic program reviews exclusively to institutionalize assessment would be too slow, along with a request to scale up efforts and set a shorter timetable for bringing the institution into compliance with key standards and criteria for review concerning student learning; and (3) developing assessment initiatives outside of and in addition to program reviews.

Since the previous reaffirmation of accreditation, the campus was required to submit two Interim Progress Reports (November 1, 2006 and November 1, 2009). The focus of these reports has been on the steps Berkeley has taken to address concerns related to our assessment of student learning outcomes and their articulation to the academic program review process. In its 2009 interim report, Berkeley described its progress with the Undergraduate Student Learning Initiative (USLI), a joint Administration/Academic Senate initiative that was put in place following our previous accreditation review, and its institutionalization in the academic program review process, as well as other assessment initiatives funded by private foundations. The last commission action letter dated February 1, 2010, praised the institution's progress and successes, and urged the Berkeley campus to continue to deepen the integration of student learning outcomes assessment within the departments and to further incorporate such assessment in academic program reviews. Our efforts in these areas will be documented in the body of our self-study.

The Berkeley campus has also had recent substantive change activity related to new degree programs that are more than 50% online:
- The On-campus/ Online Professional Master of Public Health (OOPMPH) received substantive change approval in November 2011 and admitted its first cohort in January 2012.

- The Master of Advanced Study in Integrated Circuits (MAS-IC) received substantive change approval October 2012 and admits its first cohort in Fall 2013.

- The Master of Information and Data Science (MIDS) was approved July 2013 by the UC system and is currently pending approval by WASC.

The campus reports on the progress of the first of these new degree programs in the current institutional narrative with a particular focus on assessment efforts underway.

Preparation for this Review [1.9]

UC Berkeley's reaccreditation review was launched in September 2012, as part of the Pilot 2 cohort of institutions. On October 2, 2012, The Executive Vice Chancellor and Provost (EVCP) George Breslauer charged a Steering Committee chaired by Catherine P. Koshland, Vice Provost for Teaching, Learning, Academic Planning and Facilities (VPTLAPF), and composed of key representatives of the Academic Senate and Administration, with student representation, to determine the overall direction and content of the campus self-study. A staff Working Group, composed of representatives of the Office of Planning & Analysis, Equity & Inclusion, Graduate Division, the Academic Senate, the Office of the Registrar, and the EVCP and VPTLAPF offices, was convened under the guidance of the Steering Committee. This group played a critical role in supporting the development of the narrative report, required data exhibits and other key institutional evidence. Both the Steering Committee and Working Group met monthly to ensure that the self-study process continued on track and appropriate decisions were made in a timely manner.

The Self-Review under the Standards was one of the first exercises undertaken, with considerable thought and deliberation, by the WASC Steering Committee and Working Group. The Self-Review under the Standards was circulated broadly to campus leaders with responsibility in key areas. Their input was compiled and presented to the WASC Steering Committee for review. The consensus of the WASC Steering Committee was that Berkeley's academic programs meet WASC Criteria for Review (CFRs) substantially, demonstrating strength in all of the standards and CFRs. The very few CFRs that were flagged as needing ongoing attention, related to the systematic collection and documentation of evidence of student learning. At the undergraduate major level, we have initiated a cultural change that has led to documenting student learning assessment according to formal campus-wide protocols, and we continue to support this change institutionally. Our most recent accreditation self-study exercise coincides with a priority of the College of Letters & Science to undertake a systematic review of its breadth curriculum for the first time in 40 years. Because the College enrolls three-quarters of all Berkeley undergraduates and helps establish direction and curricular offerings for breadth requirements in the remaining four colleges and those professional schools with undergraduate degree programs, this effort will have an impact on the entire undergraduate student body at Berkeley. This renewed focus on breadth is consistent with WASC CFRs and is an area that will engage campus faculty during the forthcoming review period. In addition, the Berkeley Division of the Academic Senate's Graduate Council, working jointly with the Graduate Division, took up the question of how best to articulate and document learning outcomes at the graduate level during the self-study process. These efforts are underway and are detailed in the body of the narrative.

At UC Berkeley, establishing learning goals and assessment of student learning acquisition is locally defined, discipline specific, and faculty driven. To develop an accurate and detailed picture centrally of student learning at the local level, the Steering Committee administered a survey of academic units on campus. The survey inquired into how academic programs evaluate overall student learning at each degree level and how the feedback is used to revise the curricula; how units engage with breadth courses and whether breadth should be managed campus-wide; whether units are reviewed by an accrediting body; and how units collect evidence of teaching effectiveness. The survey also included additional questions relevant to internal institutional planning purposes, including units' progress in developing strategic plans for equity and inclusion. The results of this survey inform the data in Exhibits 5.1 and 6.1 and also provide

evidence that is included in the body of the institutional narrative to illustrate our approach to student learning assessment. With the support of the academic deans, we received 100% participation in the survey from all 72 departments and professional schools, 34 graduate groups and 11 non-departmental undergraduate interdisciplinary majors. This unprecedented response rate ensured that input from the academic leadership and faculty is deeply embedded in this self-study document.

In preparing documents, the Steering Committee and the staff working group also reached out broadly across campus to administrative units and topic experts and incorporated their input. The compressed timeline of the pilot combined with Berkeley's August due date for the institutional self-study (the earliest in the pilot 2 cohort) precluded sending the final draft to the campus community-at-large for comment; however, at the launch of the self-review process and as milestones were achieved, electronic messages were sent to the entire campus community to keep it informed of our progress and the outcome of our submissions. We will continue this practice throughout the accreditation process, and will also post completed documents on the web to share with the campus community. We also note that the due date for this institutional self-study preceded the WASC Financial Review Committee's response to our annual financial report; hence, any issues that may be flagged in that report are not addressed in this narrative.

Following submission of the institutional narrative and data exhibits, the campus administration intends to continue to consult with the Academic Senate on additional ways in which we can continue to embed a culture of evidence of student learning at all levels in a manner that is compatible with our institutional values and context.

Summary of Structure of Essays to Follow

In the essays that follow, we expand on the themes highlighted in this introduction. We begin with a more detailed discussion of our approach to defining the quality and rigor of our degrees, along with our approach to ensuring that courses, degrees, and the institution as a whole are advancing knowledge and learning and bringing new perspectives to the fore as needed. In this first essay, "Enhancing Excellence in Our Educational Mission: Quality, Diversity, Rigor and Renewal," we will document how the institution ensures a culture of faculty responsibility and creativity in defining the educational mission; how we maintain a focus on faculty-student engagement as a core element of the educational process; and how we support the culture of responsibility, creativity and engagement with departmental and University-wide structures that provide resources to evaluate success, to learn from failures, and to share best practices for classroom teaching, as well as individual mentoring and advising. In the second essay, Student Success: Fostering Access and Excellence," we describe our approaches to evaluating student success on short-time horizons, such as graduation rates, and on longer-time horizons, such as over a career and a lifetime. In the third essay, "Financial Sustainability: Strategic Responses to a Changing Environment," we describe our institutional strategies for maintaining and enhancing short- and long-term success with an emphasis on finances and human resources. Finally, in the integrative essay, we discuss briefly our priorities and plans for the future.

Enhancing Excellence in Our Educational Mission: Quality, Diversity, Rigor and Renewal

Our Educational Mission

The University of California, Berkeley aims to create the combination of classroom, research, artistic, and cultural opportunities that pushes our students to fully develop their innate talents, that encourages them to seek opportunities for leadership, that develops intellectual capacity through the lens and structure of a discipline, and that exposes them to models of excellence in all fields of human endeavor. We continually seek to renew our commitment to excellence in education and to evaluate that excellence not on the short-term performance of students in specific courses (although that is obviously important), but in the long-term engagement of our students as leaders in their fields of choice and in their lifelong pursuit of new learning in an increasingly diverse and global context.

The challenge we take on is extraordinary—to give each of our 36,000 undergraduate and graduate students an individual opportunity to craft an education that is best suited to his or her own aspirations. We accomplish our goals by building a culture of respect and passion for inquiry, by challenging the status quo in the disciplines and beyond, by finding areas of agreement and areas where we agree to disagree. We teach and learn the basics in a variety of disciplines, and we expose our students to ideas that build on those basics to define the cutting-edge of modern thinking. The intellectual boundaries across campus are porous and the opportunities for interdisciplinary research and scholarship are well supported. Our goal is to ensure that our undergraduates as well as our graduate students are fully integrated into the community of scholars. A key element of our approach is the integration of research and teaching. Faculty, whose research is at the forefront of their disciplines, teach students at all levels—transmitting disciplinary methods and inspiration and providing students with opportunities to contribute to the advancement of knowledge. In this respect, UC Berkeley defines its excellence by the extent to which we challenge our students to surpass the boundaries of our knowledge.

The Education of Our Undergraduate Students [CFRs 2.2a, 2.3, 2.4, 2.5]

Our undergraduates' education begins with the concept that to be educated means to develop skills that include how to think, learn and discover on their own, to gain cultural fluency that will enable them to communicate and lead in their chosen field and in a globally-connected world. At the heart of the undergraduate experience is the development of depth and expertise in a discipline through the major coupled with the enrichment obtained from a liberal education, i.e., the development of the capacity to engage broadly with ideas through the study of a wide range of concepts through the breadth curriculum. Supporting these are pre-requisite courses, such as reading and composition, gateway courses in the STEM fields, and foreign language instruction that prepare students for upper-division work. Unique to the Berkeley experience is the American Cultures requirement centered on the comparative study of race, ethnicity and culture in the United States. In each of these dimensions, the opportunity to participate in research, pursue engaged scholarship or pursue creative work is possible.

Major field expertise is, of course, the central emphasis in the undergraduate experience and is a key focus of academic departments and programs. At Berkeley, the mastery of core competencies is undertaken in the context of disciplinary skills and knowledge. Each major has a central core of study defined by the faculty that all students pursue, combined with the expectation that students will complete their major with courses specific to the areas in which they want to engage more deeply.

Students' mastery of core competencies, including written and oral communication, quantitative reasoning, critical thinking, and information literacy as a culmination of their undergraduate education are likewise achieved in the context of mastery of a specific major discipline. As part of the Undergraduate Student Learning Initiative (USLI), discussed in detail later in this essay, every undergraduate program across the campus has articulated learning goals for its students within a disciplinary context. The Map of Five Core Competencies (see Appendix B) shows a representative sampling of departmental learning goals by decanal unit mapped to the core learning abilities and competencies stipulated in CFR 2.2a. Our understanding of the competencies has also been informed by the VALUE rubrics developed by the Association of American Colleges and Universities. The map amply demonstrates that the competencies are deeply embedded in the major experience across the disciplines at Berkeley.

The major is balanced at Berkeley by a campus-wide commitment to the development of a liberal education through cross-cutting curricular requirements. The breadth curriculum is endorsed by each college and has traditionally allowed students to explore different fields of knowledge beyond their primary disciplinary interest. Breadth requirements often serve as stimuli for students to identify a major, to choose a different major than the one originally intended or to double-major, and breadth classes may provide students skills and afford pleasures that enrich their lives after graduation.

Students majoring in programs in the College of Letters & Science (L&S), which includes 74% of the total undergraduate population at Berkeley, have a seven-area breadth requirement as the pillar for liberal arts education. Students are required to take one course each from the following areas: Arts and Literature, Historical Studies, Biological Sciences, Physical Science, Social and Behavioral Sciences, Philosophy and Values, and International Studies. More than 2000 courses are approved by the L&S Committee on Courses of Instruction and Academic programs. With some variation, the L&S breadth requirements constitute the basis for breadth requirements in a number of other campus colleges, as well as for those L&S students who take advantage of an undergraduate major offered by one of the professional schools; thus, L&S requirements form the foundation of breadth across most of the campus. The specifics of breadth requirements for the other four colleges can be found as follows: College of Chemistry, College of Engineering, College of Environmental Design, and the College of Natural Resources; and for one professional school, Haas School of Business, which grants its own undergraduate degree (not through L&S).

In addition to the seven areas of study cited above, all Berkeley undergraduates take an American Cultures (AC) course, the only campus-wide requirement for graduation. AC courses focus on themes or issues in United States history, economy, environment, society, or culture; address theoretical or analytical issues relevant to understanding race, culture, and ethnicity in American society; take substantial account of various ethnic groups that shape American identity and experience; and provide integrative and comparative lenses for students to study each group in the larger context of American society. This requirement is overseen by an active Senate

faculty "[Sub-committee on the Breadth Requirement in American Cultures](#)" that determines which courses fulfill the expectations of the requirement.

The Education of Our Graduate Students [CFR 2.2b, 2.3, 2.4, 2.5]

Nearly a third of UC Berkeley's 36,000 students are graduate students, about 10,000 in all. Approximately 57% of them pursue doctoral degrees and 43% pursue master's or professional degrees. Berkeley's graduate programs are consistently rated in the top tier in the U.S. and in the world and its graduate students are indispensable to the faculty's ability to conduct the cutting-edge research for which Berkeley is renowned.

According to the 2010 National Research Council's rankings of doctoral programs, UC Berkeley has the largest number of highly-rated graduate programs of all U.S. universities. It has more programs with rankings that range into the top five than any other university; Berkeley is second in number of programs with rankings that range into the top position. Of our 52 programs, 48 included in the assessment have rankings that ranged into the top ten—more than any other university. Berkeley is placed ninth overall and fifth in academic reputation worldwide in the 2012 World University Rankings by the *Times Higher Education* of London. Additionally, according to the recent Academic Ranking of World Universities by Shanghai Jiao Tong University, Berkeley ranks third in the world based on faculty productivity, honors, and awards.

UC Berkeley's graduate education is enriched by a diverse student body. Approximately 46% of Berkeley graduate students are women, and 15% are U.S. citizens and permanent residents who are from historically under-represented minority groups. Berkeley awards more research doctoral degrees to students from groups historically under-represented in higher education than do any of the 62 other members of the Association of American Universities (AAU). Overall, the Berkeley campus produces more Ph.D.s than does any other U.S. research university, approximately 900 per year, and also annually awards 2,500 master's degrees.

Graduate education occurs under both academic and professional degree frameworks, the standards for which are established by the Berkeley faculty's Academic Senate through legislation of uniform requirements. The heart of a graduate student's program, however, lies in individualized faculty mentorship. Faculty advise students on the particular course of study that matches each student's interests in research or professional application.

The academic doctoral degree framework also encompasses opportunity for expanded interdisciplinarity. Since 1992, doctoral students may also avail themselves of the option to participate in a graduate minor, called a [Designated Emphasis](#), which adds interdisciplinary breadth to their graduate studies. Since the last WASC review when only two Designated Emphases existed, another 12 such programs have been approved, ranging from Energy Science and Technology, Critical Theory, and New Media, to Renaissance and Early Modern Studies. However, interdisciplinarity as a value of Berkeley graduate education is nothing new. In 1926, Berkeley's faculty Graduate Council determined that all graduate qualifying examinations and dissertation committees must have a member from outside the student's major, not only to consolidate appropriate standards across disciplines, but also to add interdisciplinary depth to the student's academic preparation.

In each Berkeley program, whether graduate or undergraduate, the faculty drive the content and the expectations. In the sections that follow, the ways in which the faculty develop programs, evaluate their quality and effectiveness, and engage in their revision are discussed.

Meaning of Degrees: Educational Excellence Begins with Faculty Leadership [CFRs 2.2, 2.2a, 2.2b, 2.5, 2.8, 2.9]

A primary institutional investment is in our curriculum, which is developed by our faculty and represents a major portion of our intellectual endowment. UC Berkeley supports over 290 degree granting programs, which all together offer over 350 academic and professional degrees at the undergraduate and graduate levels. We place the prime locus for defining excellence for each program on local experts—our faculty. The faculty determine the content of the courses, the expected preparation (pre-requisites) and the frame of the major. From the day we hire new faculty, we immerse them in a culture that aspires to excellence in teaching, research and service. Our system of promotion rewards excellence in teaching and mentoring as well as research and service. Whether by observing their senior colleagues or through formal orientations, new faculty learn that the success of our students is closely monitored and highly valued. Faculty engage in frequent informal conversations about teaching methods, about how well lower-division courses prepare students for upper-division work here at Berkeley, or about how well major curricula prepare Berkeley students for graduate school here or elsewhere. Faculty who recognize deficiencies in the curriculum are empowered by their departments to propose changes—and frequently do so.

Faculty engaged in curricular revision may participate in departmental curriculum committees charged with ongoing improvement of the overall curriculum. A crucial element of these committees is the integration of faculty with new ideas with the wisdom and experience of faculty with long-term experience of previous changes and who can provide perspective on what prepares students for success over the span of their career. The 2013 Academic Unit Survey indicated that 71% (83 of 117) academic units have standing curriculum committees for undergraduate and graduate programs, either separate or combined. Such committees make regular adjustments—approving new courses that modernize a curriculum, encouraging changes to a syllabus that realign course material with student interest and/or align them more closely with courses students take in subsequent years. In response to student interest, the Group in Asian Studies, for instance, recently added a multi-area, thematic concentration to their undergraduate major, in addition to options for concentrating exclusively on China or Japan. The program expanded options for fulfilling the lower-division history requirement to include courses on Korea and South Asia and now accepts Korean language courses in fulfillment of the foreign language requirement.

Increasingly, faculty collaborate to meet the needs of more than one academic program. An example of cross-campus curricular innovation at the scale of individual courses is a two-semester sequence introduced by the Mathematics Department to develop the mathematical tools required in the biological sciences. This sequence, which has enrollment of more than a hundred students for both courses in the sequence, is focused on Calculus, Statistics and Combinatorics, all three of which are fundamental to study in the biological sciences. Through data presentation and analysis, with examples drawn from biological applications, specific mathematical topics are introduced, including differential and integral calculus, probability theory, statistical modeling, matrix algebra and differential equations. The need for these courses was recognized by faculty working at the interface between mathematics and biological disciplines, and they have quickly become a recommended or required course for multiple majors, including Psychology, Molecular and Cell Biology, and Integrative Biology.

On other occasions, curriculum committees propose completely new majors. For example, the Chemistry department developed a new undergraduate program in Chemical Biology, introduced in Spring 2003. As measured by student demand, the program is exceptionally successful with roughly equal numbers of students now graduating with the traditional chemistry degree and with a chemical biology degree. The program is equally successful if measured by admission of its students to graduate/professional schools (48%).

A graduate-level example of faculty curricular collaboration generating innovative degree programs driven by the changing world landscape and its needs is provided in the proposed 95% online Master of Information and Data Science, which is pending WASC approval. This is one of the first degree programs in the nation to address the lack of trained big-data professional analysts who can harness the plethora of data propagated by the web, mobile devices, sensor networks, and other sources for research and social, economic, political, and cultural insights.

The culture of ongoing self-assessment and striving for greater excellence is also demonstrated by faculty in established, highly-rated graduate professional degree programs, such as Berkeley's Haas School of Business, where the faculty were motivated to re-envision their culture, learning goals and curriculum to meet the challenges of the 21st century. "Paths to Leadership" by the Haas School Dean outlines the considerations which contributed to the faculty's redesign of the MBA curriculum and the specific principles, goals and approaches to teaching and learning that were adopted by the faculty in 2010.

Increasingly faculty are creating additional curricular and co-curricular professional development opportunities for graduate students to prepare them for success in both the academic and non-academic job markets. In the Department of Comparative Literature, for example, faculty members offer a series of professionalization and pedagogy workshops. Some programs offer formalized professional development courses: the Psychology Department has a professional development course for second-year students and Plant and Microbial Biology offers a grant writing course. Departments also provide opportunities for graduate students to gain practical experience in leading, organizing, and managing an annual conference; for example, the Performance Studies Graduate Group has students organize an annual Graduate Student Speaker series.

Faculty-Student Engagement

According to popular perception, Senate faculty-student contact is minimal at large, first-tier research institutions such as UC Berkeley, and students are taught in very large courses or by non-Senate faculty, while Senate faculty are immersed in their research separate from students. Fortunately, this is a myth. Senate faculty teach 80% of our graduate courses, 63% of upper-division undergraduate major courses, and 40% of lower-division courses, while non-Senate faculty, who have appropriate subject or pedagogical expertise, teach the remainder of courses. As a rule, Berkeley strategically employs long-term lecturers and adjunct faculty in areas of the curriculum where they provide specialized professional expertise not shared by the Senate faculty, e.g., foreign language pedagogy, Reading and Composition, or practical experience relevant to professional degrees. Non-Senate faculty may also be used on an ad hoc basis to compensate for short-term staffing shortages, for example, when demand in a particular field increases dramatically or when a Senate faculty member goes on leave. Berkeley values the contributions of non-Senate faculty and support for these instructors is discussed later in this essay. Myths about class size are also not borne out by facts. In Fall 2012, for instance, of the 3,874 courses offered, only 275 had 100 or more students enrolled; 77% of undergraduate classes

had fewer than 30 students; and 86% had fewer than 50 students (see [Berkeley Undergraduate Profile](#)). When large courses are scheduled, such as in our uniquely large 732-person capacity Wheeler Auditorium, demand is often driven by the star power of faculty; luminaries such as former Labor Secretary and UC Berkeley Professor Robert Reich or popular author and Professor Michael Pollan attract high student enrollments, and the lecture format lends itself to the pedagogical styles of some of our biggest faculty stars. Many faculty also excel at making large enrollment classes seem smaller through use of innovative active learning techniques, which they incorporate into traditional lecture style classrooms. Furthermore, large format lecture courses are also accompanied by small discussion sections led by Graduate Student Instructors who are trained and supervised by faculty.

In fact, a fundamental characteristic of the Berkeley experience is the close connection between faculty and students. The interaction creates a highly individualized experience for students, while also forcing the institution, including faculty, students and administrators, to continually re-evaluate, question, critique and, thereby, improve the educational and intellectual experience for all. By engaging students directly, both in the classroom and in research, faculty can mentor them, assess their needs, and help prepare them for the life-long learning and leadership that is a hallmark of Berkeley graduates.

The engagement of faculty and students starts in the classroom, but extends well beyond. The integration of research and teaching that characterizes the Berkeley classroom allows all students to build an awareness of what constitutes cutting-edge research that redefines fields. At the same time, communicating about research in the classroom forces faculty to rethink their own work, and many times new insights emerge from the process. For many students, the connection creates a spark of interest; for some students it might be in a freshman seminar; for others it might not be until they are pursuing a senior design project; but once the spark is created, a number of resources, including undergraduate research and service programs, exist to foster and develop their burgeoning interest.

Senate faculty's engagement with undergraduates often begins early in an undergraduate's experience at Berkeley. The [Freshman and Sophomore Seminars at Berkeley](#) (Freshman Seminars) are small, one-unit courses that explore topics of both research and public interest and foster an initial connection between Berkeley students and Senate faculty. In the most recent academic year (2012-13), about 50% of freshmen took a Freshman Seminar and about 10% of ladder faculty taught them. In the twenty-one years since the program launched, over 700 Senate faculty members from departments across the campus have taught Freshmen Seminars. These courses typically enroll about 15 students, which allow the faculty to engage individually with students and to understand and to build their academic interests. With these intimate courses, Berkeley is able to create an environment that is highly individualized and allows the students to be exposed to research topics in a way that would normally be reserved for much smaller institutions and to fields normally reserved for graduate students. Institutionally, the support for this program is demonstrated by the fact that faculty are rewarded for their participation in the seminars with grants for research or seminar support and through recognition during their merit and promotion reviews. Nevertheless, it is noteworthy that faculty teach these courses as an overload, i.e., in addition to meeting the workload standards of their home departments. The extent of faculty engagement with the program speaks to the deep commitment that Berkeley faculty have for improving the experience of our students, fostering inquiry, and allowing Berkeley students to have an educational experience that maximizes their development.

Berkeley also invites students to engage directly with faculty before they enter even one classroom. Our On the Same Page program welcomes students to the intellectual community by providing something in common—a book, a film, a theme—for all of our faculty and all of our new students to talk about, and then provides contexts in which to have these discussions. The faculty receive their books in the spring, and then in the summer, when new freshmen and transfer students arrive for orientation, they receive their free copies. They are encouraged to read their books over the summer, so when they arrive for classes in the fall they can engage in a variety of ways, from Freshman Seminars and other courses related to the theme, to one-time dialogues with faculty around the book, to author events and faculty panels, each of which is followed by a reception where students can speak with one another, the author, and faculty panelists. Our first author, eight years ago, was scientist Stephen Hawking—the students received *A Briefer History of Time*—and this year's author is George Dyson, whose *Turing's Cathedral* will inspire a discussion of the dawn of the computer age. This year we have nearly 8,000 new students (including spring admits), underscoring the immense size and potential impact of the program.

Undergraduate Research [CFRs 2.2a, 2.5]

Whether through seminars, or through the widespread integration of research in courses across campus, many students become interested in particular research efforts and wish to participate during their undergraduate studies. The 2013 Academic Unit Survey reported that 84% of academic units provide students with opportunities for research training. The 2012 UC Undergraduate Experience Survey (UCUES) also points to the level of faculty dedication to providing students with an inquiry-based educational experience. And, out of a large representative sample (8,689) of undergraduate students, 79% of them indicated that they are engaged in a research project, creative activity, or paper through coursework. Thirty-seven percent of the students said they took at least one student research course; 21% said they took at least one independent study course; and 44% responded that they assisted faculty-led research or worked on creative projects under faculty direction. As one would expect, the involvement of undergraduates in research or special creative projects increases as they advance in their studies. The 2012 UCUES survey found that 66% of Berkeley seniors have assisted faculty with research or creative projects.

In an effort to develop undergraduate students' research skills, 84% of our undergraduate major programs offer research methods courses. Additionally, since effective written communication skills are essential for research, two-thirds of undergraduate programs provide students with intensive writing opportunities in a variety of ways. These opportunities can be found in lower-division Reading and Composition courses (e.g., German, History of Art), lab courses (e.g., Chemistry, Material Sciences and Engineering), technical communication courses in the discipline (e.g., American Studies, Chemical Biomolecular Engineering), thesis or research seminars (e.g., Economics, English, Middle Eastern Studies, Peace & Conflict Studies), honors seminars (e.g., Asian Studies, Legal Studies), courses across the curriculum (e.g., Philosophy, History, Film and Media Studies) or all upper division courses (e.g., Rhetoric).

The Office of Undergraduate Research provides a central portal to more than 50 undergraduate research programs. A large number of faculty offer research opportunities through organized campus programs. Founded in 1991, the longest-standing and largest such program is the Undergraduate Research Apprentice Program (URAP), which provides a central system and resources to facilitate the placement of about 1,400 undergraduates per semester into research assistant positions all across the Berkeley campus, through federally-funded research centers,

and on an ad hoc basis with about 300 individual faculty members per semester. In Spring 2013, for instance, URAP engaged 1,415 undergraduate students and about 280 faculty. Extensions of URAP-supported activity may include a stipend of up to $2500 for summer research for 40-50 students, requiring close coordination between the student and his or her faculty research adviser. Local efforts, such as the SRC Undergraduate Research Program (for Semiconductor Research, sponsored by Intel) or coordinated efforts by departments (e.g., Physics), supplement this campus-scale program. A number of other programs facilitate summer research on the Berkeley campus, including SUPERB, the Amgen Scholars Program, SROP, COINS Undergraduate Research Program, E3S Summer Research Program and TRUST Research Experiences for Undergraduates. Another initiative is the Qualcomm Undergraduate Experiences in Science and Technology (QUEST) program, recently launched in the College of Engineering. This program supports undergraduates working with faculty members on paid research or design projects, with the objective of increasing opportunities to engage directly with faculty. While the above-mentioned programs aim to facilitate undergraduate involvement in faculty-initiated research, other programs fund student-initiated research projects. Examples include SURF (90 students), McNair Scholars (about 35), Biology Fellows (about 15), Haas Scholars Program (20), Institute of International Studies Undergraduate Merit Scholarship (23), SPUR (about ten), along with a half dozen grants that fund a few students each for specific topics. The participation of undergraduates in the research efforts across campus extends well beyond these formal programs, however, and is a clear demonstration of the level of faculty-student engagement.

Undergraduate research experiences clearly inspire many of our graduates to continue in research; based on the Survey of Earned Doctorates, for over 40 years UC Berkeley has topped The National Science Foundation's list of U.S. institutions with the most bachelor degree holders who go on to earn a Ph.D.

Undergraduate Mentoring [CFRs 2.2a, 2.2b, 2.5, 2.9]

Faculty mentor undergraduates as academic advisors for departmental majors and in other more structured programs. An example of the latter, reflecting a new institutional investment, is a faculty-student engagement and mentoring program named Berkeley Connect. After a highly successful, multi-year pilot program in the English department, Berkeley is now scaling up Berkeley Connect for students across the campus (video). Designed to create intellectual community, the program represents an organized approach to undergraduate mentoring within the major department, using graduate student mentors, with faculty guidance. This program, which began as a philanthropically-funded effort in the English Department (the Chernin Program), connects undergraduates with graduate student mentors and includes informal lectures by, and discussions with professors, as well as field trips and visits to campus resources such as the Bancroft Library. The role of the graduate student mentor is to advise and to engage undergraduates in discussions of how to make the most of their educational experiences; to facilitate connections with faculty; and to promote the formation of intellectual bonds with academic peers. The experiences of participants include one-on-one advising, small group discussions, and lectures to build an awareness of resources across the Berkeley campus. In the assessment (see Appendix C) conducted as part of the English Department pilot program, satisfaction rates were 97% and higher, and 90% of the participants stated that the program helped them both as English majors and as Berkeley students in general. Nine additional departments across a broad range of disciplines will take part in the program during the 2013-2014 academic year, with continuing expansion planned after that. It is expected that about 30% of students will want to take part in the program, at least in the first years, and that it will take about four years to roll it out across the College of Letters & Science.

We have a number of more targeted programs that serve particular populations and provide personalized academic enrichment. The Berkeley Science Network is one such program which is designed to advance under-represented students' engagement in STEM fields through mentorship and to eliminate barriers frequently faced by under-represented students. Through the creation of a community of scientists that span disciplines and educational level, the Berkeley Science Network creates access to information, coaching for professional development and access to distinguished industry leaders. There are also a variety of programs that support increasing diversity in fields with clear underrepresentation, including the Professional Development Program, McNair, SAGE, and Miller Scholars programs and many others. To connect students in these programs, and students more generally, with role models in graduate school and on the faculty, we also have programs like Getting into Graduate School (GIGS) and the COMPASS program.

A complementary effort has been developed by the Graduate Division with funding from private donors to make mentored undergraduate research available to a much larger cross-section of the student body. The Student Mentoring and Research Teams (SMART) pilot program is in its second year and includes five programs: Physics, Sociology, Public Health, Chemistry, and History. With funding provided for both the undergraduate researcher and the graduate student mentor, the SMART program aims to facilitate student-led, cutting-edge research. For the undergraduates, this experience helps them to develop their interests through hands-on research experience, and will help to determine the next steps in their education. For graduate students, the transition from Ph.D. student to junior faculty member or to other professional roles involves many new challenges, one of which is learning how to advise and guide others in their research or professional work. Through the SMART program, Berkeley is launching a new approach to help prepare our Ph.D.s to be research and professional mentors throughout their careers.

Graduate Mentoring [CFRs 2.9, 2.12]

Mentorship of graduate students forms the basis for doctoral education at Berkeley. Mentorship is an important part of the research apprenticeship that doctoral students undertake when completing their dissertations and starting their job search. The Berkeley Division of the Academic Senate's Graduate Council published a document outlining best practices for mentoring of graduate students in 2006. Recommendations are provided in three broad areas: guiding students through degree requirements, guiding students through research, and guiding students through professional development. The recommendations underscore the importance of treating students respectfully and fairly and serving as a role model for upholding the highest ethical standards. Faculty also mentor graduate students as instructors, individually, as instructors of the mandatory 300-level pedagogy courses, and as instructors of large lecture courses which employ a number of graduate student instructors. Evaluation of faculty performance as graduate student mentors is a criterion for academic personnel reviews for merits and promotion (APM-210-1, APM 220-85). Guidelines are published by Graduate Council to advise individual faculty, review committees of the Academic Senate, and academic administrators on the full range of graduate student mentoring to be considered in performance reviews and on awards available to recognize outstanding graduate student mentoring, such as the Distinguished Graduate Student Mentoring Award.

Additional Faculty-Student Engagement [CFRs 2.5, 2.9]

Faculty-student engagement takes many forms. The Faculty Athletic Fellows Program, for instance, is designed to enhance the student-athlete's academic and intellectual experience at Cal.

Student organizations which are student-led and organized, helping students to develop the leadership skills that will be of value throughout their careers and lives, may also have faculty advisors or faculty sponsors who work with them, especially if students wish to receive academic credit for field or classroom work. The Pilipino Association for Health Careers, for instance, is a Student Activity Group with a faculty advisor. The DeCal Program, which dates to the student activism of the 1960s, provides opportunities for students to initiate, create and facilitate courses under the mentorship and oversight of a faculty member as a special studies course (98/198). These courses are carefully monitored by the department chair and the Committee on Courses of Instruction. The Student Learning Center also has the office of Undergraduate Course Facilitator Training and Resources (UCFTR) dedicated to helping Berkeley students be effective course facilitators to ensure the quality of these innovative curricular offerings. These UC Berkeley courses receive between one to three credits on a pass/no pass basis and cover a wide variety of topics, such as Music and Roman Catholic Liturgy: On this Side of Heaven and Learn to Solve the Rubik's Cube/SpeedCubing, many of which are not covered in faculty-designed courses.

Finally, we note that the engagement of faculty and students extends to the governance of the institution. Students are involved with the process of shared governance at a variety of levels, such as active members on 16 academic senate committees, including committees that address graduate programs (Graduate Council), broad consideration of teaching issues (Committee on Teaching), educational policy (Committee on Educational Policy), admissions (Admissions, Enrollment and Preparatory Education) and resource allocation (Committee on Academic Planning and Resource Allocation). Student representatives are fully functioning committee members, with voting rights, and engage actively in committee discussions and deliberations, thus reinforcing the close connections between faculty and students. System-wide, each year a Student Regent-designate is appointed from any one of the UC campuses, who, the following year, becomes a full voting member of the UC Board of Regents and serves for one year.

Civic Engagement [CFRs 2.2, 2.9, 2.11]

The Berkeley academic community is noteworthy in its commitment to the value of public service, and many Berkeley students and faculty become involved with and lead a variety of public service projects, both research-related and co-curricular. Cal faculty have developed partnerships with community-based organizations to provide opportunities for courses incorporating experiential learning and to develop collaborative research projects addressing community interests. Examples include educational outreach to rural Central America, the development of low energy approaches to improving drinking water in Africa, and outreach and mentoring to students in urban school districts in the San Francisco Bay Area. Faculty are frequently just as engaged in these efforts as the students, and working together on teams helps to foster the strong faculty-student connection that facilitates education, growth and governance on campus. Another recent example highlights this connection: a Professor in Civil and Environmental Engineering facilitated and participated in a trip by eight graduate students to Honduras, where the students developed, organized and delivered lessons to middle school students about the importance of drinking clean water and introduced simple methods to improve water quality. This type of service to the world is characteristic of the culture at Berkeley, and demonstrates the engagement of both faculty and students in pursuing it.

Active support for civic engagement begins with the Chancellor. Established by Chancellor Emeritus Birgeneau in 2006, the UC Berkeley Chancellor's Community Partnership Fund supports projects and programs that establish, extend and strengthen collaborative partnerships between UC Berkeley and the wider Berkeley community. The fund seeks to enhance the quality

of life for people who live and work in Berkeley by providing grant funding to neighborhood improvement projects and community service programs that link the university's energy and resources with those of the community. Funded projects range from improving campus-community relations, green projects, youth literacy, and college-prep for under-represented minority junior and senior high school students.

At the programmatic and course level, learning goals for engaged scholarship can include academic content, such as: civic learning, social responsibility, and social justice, and professional objectives, such as career development through practicums and internships. One third of undergraduate degree programs report that their curricula include service learning or community-based learning courses, demonstrating the reach of community engagement across the curriculum (2013 Academic Unit Survey).

Within the American Cultures (AC) framework, a unique set of courses designated as American Cultures Engaged Scholarship (ACES) courses provide opportunities for students to participate in collaborative projects and scholarship with community partners, to engage in community-based learning, to create meaningful collaborative research environments with partners outside the university, and to reflect on engagement in social issues and interests. For instance, a course currently under review by the Committee on Courses of Instruction, Environmental Engineering and Society, is intended to be offered in the Department of Civil and Environmental Engineering and will also count toward the Global Poverty Minor. The course is designed to be a cutting-edge fusion of STEM subject matter with social and environmental justice practice, not only expanding the pool of interested students, but also transforming how subject areas are conceptualized. The course description reads in part, "student learning will take place both in the classroom as well as through engagement with local and regional communities through partnerships with various community-based organizations…students will learn to value different forms of knowledge produced within communities and in so doing come to understand the importance of engaging with problems in ways that not only stretch beyond technical approaches but also foreground social and political concerns and context."

ACES courses range from lower-division gateway courses to upper-division seminars, from Anthropology to Public Health. Faculty selected in the ACES program become Chancellor's Public Scholars and receive a research grant and support for course implementation from one or more undergraduate or graduate students serving as Chancellor's Public Fellows. The ACES program has supported the design of 23 courses over the last two years, including Legal Studies 190AC: Restorative Justice, Sociology 146AC: Contemporary Migrations, and Art Practice 23AC: American Cybercultures. Another eight courses, including the one mentioned above, are being developed for 2013-14. The assessment of this program is discussed later in this essay.

The UC Berkeley Public Service Center works with students, faculty, community organizations and government offices to connect ideas, resources and people to act for social justice, build healthy communities, and foster life-long commitments to public service. The center offers 20 co-curricular programs—which encompass more than 50 projects—that are co-led by students and professional staff. More than 200 student staff coordinate and lead their peers in direct service opportunities and internships. In addition, the center also offers jobs, fellowships, grants, courses, and research opportunities. The center tracks its success in engaging students, faculty, and community partners in public service endeavors through both student learning outcomes and other program metrics. The center utilizes Volunteer Match to serve as a portal through which community partners can post their service opportunities and students can find them. In 2013-14 the center partnered with more than 250 community-based organizations, government offices,

and schools to engage more than 4,000 student participants who provided more than 175,000 hours of service to off-campus communities.

Berkeley, however, is not content merely to provide opportunities for service. The Dean of Students has developed student learning outcomes for co-curricular programs and an assessment matrix that includes a dimension for public service leadership. Based upon the Social Change Model of student leadership, the Dean of Students assesses participants in the co-curricular programs on seven competencies using a research-tested survey instrument. Results of participants in each program are compared with national benchmarks and averages of a random sample of Berkeley students. Co-curricular programs assessed in this manner include the Public Service Center, LEAD Center, Center for Student Conduct and Community Standards, and Student Legal Services.

In many instances, the systematic assessment of co-curricular programs leads directly to changes in the programs to improve student learning outcomes. For example, the Future Leaders program supports leadership development in transfer students. Students were assessed on three learning outcomes from the Social Change Model of student leadership. Students showed advanced levels of development in Consciousness of Self and Collaboration. To increase developmental levels of Common Purpose and Controversy with Civility, the instructors plan to give students opportunities to engage in conflict and to practice skills of giving feedback to one another.

The campus expects to continue to provide a growing number of public service opportunities to its students, both academic and experiential. The recent addition of the Blum Center for Developing Economies and the introduction of the Global Poverty and Practice Minor have both supported our students' interest in this area, and demonstrated our students' commitment to social action. The core course, Global Poverty – Challenges and Hopes in the New Millennium, enrolls 450-500 students per offering. The Global Poverty and Practice Minor has grown to be the largest minor on campus in just five years since it was established. Students must complete 200 hours of field experience. Currently 290 students have declared the minor and more will declare as the fall semester gets underway.

Our success with engaging students in public service continues after graduation. We are proud that UC Berkeley holds the record for placement of our graduates in the Peace Corps. Over 3,500 alumni have served as Peace Corps volunteers in more than 120 countries since 1961, and we rank sixth in the nation as a major university currently providing Peace Corps Volunteers overseas (85 volunteers). We also stand out with regard to our students' participation in Teach for America after graduation. In 2012, UC Berkeley was ranked as the top contributing college or university to the Teach for America corps, with 88 graduates in that year alone starting their two-year classroom commitments at urban and rural K-12 schools.

Student-led public service is one part of engaged scholarship at Berkeley. This is particularly apparent among graduate-level professional school degree programs. The University of California Optometric Student Association (UCOSA), for instance, is the representative body for students at Berkeley Optometry. It provides vision care services through student-sponsored activities such as the student-led VOSH (Volunteer Optometric Services to Humanity) which provides optometric services to residents of third-world countries and utilizes glasses collected and donated to the program which are re-sorted and utilized for individuals who could not otherwise afford them. Closer to home, Optometry students have liaised with Remote Area Medical (RAM) California to provide optometric care alongside care extended by medical and dental practitioners and students for our state's neediest citizens. Similar but locally-focused is

the student-run Suitcase Clinic, through which undergraduate and graduate students in Public Health, Social Welfare, and Health and Medical Sciences majors provide health and medical services to Bay Area residents in a variety of ways. And, in 2003, the Haas School of Business MBA students founded the Berkeley Board Fellows which places Haas MBA, Goldman Public Policy and Public Health graduate students as non-voting members of Bay Area non-profit boards of directors to complete projects that leverage the Fellow's expertise to address a strategic need of the board.

Campus-wide Review Processes that Support Academic Excellence

As stated earlier, authority for determining curricular and course content and standards is delegated to the Senate faculty by the UC Regents. Peer review and shared governance are the foundation of the Berkeley culture of academic excellence described above. The faculty members of Academic Senate committees come from a broad range of disciplines and ensure a comprehensive approach to the Senate's work. Senate committees develop, document and administer the policies, guidelines, and procedures that sustain academic excellence. The rigor of our policies and protocols is demonstrated by the fact that WASC has in the past requested permission to link to specific Berkeley policies, procedures, and documents as models on its website.

Review of Existing Programs: Academic Program Review at Berkeley

Among the most important of our internal review processes is the academic program review process. The culture of self-reflection, self-criticism, and self-improvement manifests itself formally in academic program reviews. This effort includes processes for the review of academic departments and professional schools, Graduate Groups, and Undergraduate Interdisciplinary Teaching Programs, respectively.

Academic Departments and Professional School Reviews [CFRs 2.1, 2.7, 2.8, 4.4, 4.5, 4.6, 4.7]

At the time of our last institutional accreditation in 2004, Berkeley was actively engaged in re-envisioning our Academic Program Review (APR) process as a result of an internal Academic Senate-Administration Task Force recommendation, which identified two central concerns with the academic program review process: (1) a lack of timeliness of the process and (2) a lack of attention to undergraduate education. At the urging of WASC, we decided to make the revamping of our academic program review process a focus of one of the essays in our institutional self-study in our last accreditation cycle. Since 2004 and as an outgrowth of the work undertaken in our last accreditation self-study, we have completely redesigned the APR process for academic departments and professional schools and are nearing the completion of the first cycle of reviews. Oversight responsibility for APRs is now under the Program Review Oversight Committee (PROC), chaired by the Vice Provost for Teaching, Learning, Academic Planning and Facilities (VPTLAPF), signaling a commitment to focus on undergraduate as well as graduate education, as part of a comprehensive review of academic programs. The PROC is a joint committee of the Academic Senate and the campus administration.

The APR Guide is revised periodically to incorporate the expanding purview of reviews and the benchmarking of best practices. Of greatest interest are the sections entitled "Introduction and Review of Existing Instructional Programs/Units," which orients the reader and provides an overview of review process logistics, and "Appendix IV, Self-Study Questions," which provides

a series of questions highlighting issues of importance to the constituencies represented by PROC to guide units as they prepare their self-study. The APR process now incorporates the following key features that are new or improved:

- A cycle for the reviews is published, and all academic units are reviewed on a regular eight- to nine-year cycle.

- Reviews are designed to be forward-looking and strategic with past efforts evaluated in the context of future planning; the first audience for the review is the unit itself.

- Action items emerging from the review are tracked and departments are held accountable for deliverables requested as an outcome of the review process.

- Cognizant deans are fully engaged in the process, providing input at all junctures and helping to hold departments accountable for any action items that are identified.

- Reviews are conducted jointly with the Academic Senate, with five committees of the Senate weighing in on different aspects of the review: Budget and Interdepartmental Relations (Budget Committee) (FTE allocation and academic personnel), Graduate Council (graduate education), Committee on Educational Policy (CEP) (undergraduate education), Committee on the Status of Women and Ethnic Minorities (SWEM) (equity and inclusion), and Committee on Academic Planning and Resource Allocation (CAPRA) (facilities and resources).

- Reviews are completed in under 24 months (the minimum time determined feasible to allow for full stakeholder involvement from the Academic Senate) from the time of the initial kick-off meeting with the Vice Provost to the time when the department receives the outcome letter summarizing the review and any action items.

- A dedicated analyst in the Office of Planning & Analysis (OPA) provides the department and the reviewers with an analysis of institutional data, allowing the department to spend its time on reflection and consideration of what is working and what needs attention across the full spectrum of teaching, research, financial and capital needs.

- A focus on undergraduate education and assessment of student learning has been fully integrated into the review process since our last accreditation and is addressed in all key documents including the OPA data summary, the departmental self-study, the charge letter to the External Review Committee, and the outcome letter.

- The campus's Equity & Inclusion Strategic Planning has been fully integrated with the APR process.

- A support team including subject matter experts in organizational development, program-level assessment and curriculum design, and equity and inclusion strategic planning meets with the department chair and provides support throughout the process.

- Senior campus administrators are informed of the outcomes of each review and are asked to address issues that are beyond the scope of departments to address alone, as well as to respond to cross-cutting concerns that emerge from the review process.

In terms of protocol, the process begins with a self-review, followed by a visit by an External Review Committee (ERC). The ERC is accompanied by a representative of the Academic Senate at large, a Senate faculty member who is appointed to serve as the Senate Liaison for each review. The Senate Liaison's role is twofold: (1) to provide guidance to the ERC regarding Berkeley's culture and institutions and the academic and intellectual contexts in which the unit

operates; and (2) to report on the process and content of the site visit and the department's climate. The ERC report, combined with the unit's self-review and response to the ERC report, and a report by the Academic Senate Liaison form the basis for deliberations and discussions by the Academic Senate committees, including CEP, Budget Committee, CAPRA, Graduate Council and SWEM. These committee discussions are coordinated and aggregated by the Divisional Council (DIVCO), whose own deliberations provide input to the review process coordinated by the administration through the office of the VPTLAPF. The outcomes of these reviews include a wide range of feedback for the program or department under review, but are strongly focused on improving instruction at all levels of the institution and inform strategic planning at the decanal and campus levels. As one Academic Senate committee chair remarked in an unsolicited comment, "I am convinced that CAPRA's participation in the departmental reviews has greatly aided in our understanding of campus practices, and helps us give better advice on faculty priorities."

A number of recent APRs led to innovations in the undergraduate curriculum. Several of the projects recently funded through the newly launched 2013-14 Presidential Chair Fellows Curriculum Enrichment Grant Program, for instance, grew out of specific recommendations concerning improvements to the undergraduate curriculum that were outcomes of the academic program review process. These include the development of a new quantitative gateway course serving the social sciences and a revamping of the gateway courses in the College of Environmental Design and in the Department of Environmental Science, Policy and Management.

At the graduate level, an example of the culture of self-assessment fostered by APRs is the recent modification of the graduate admissions policies in the Department of Physics. Physics's self-review included examination of its graduate admissions criteria and their efficacy in predicting future creativity and initiative in research, primary metrics for success as graduate students and as future physicists. The department, led by its chairperson, underwent a thorough re-evaluation of its approach to graduate admissions, including a quantitative study of what indicators were most effective at predicting a particular student's likelihood of success as a Ph.D. student. In the next admissions cycle, it was clear that graduate admissions had, in the respects one can evaluate over the short-term, improved significantly. In this example, a campus-wide review effort identified an area of concern, which was then addressed through the efforts of individuals working locally in the department, where a solution was developed that can now be evaluated over the time scale of the Ph.D. program (i.e., it will take six to ten years for multiple cohorts to graduate under the new admissions rubric).

Graduate Group Reviews [CFRs 2.1, 2.2, 2.2b, 2.7, 4.1, 4.4, 4.6, 4.7]

Graduate Groups are interdisciplinary academic units that have been authorized by the UC System to offer and administer a graduate-level degree or a "designated emphasis" (an interdisciplinary "minor" for doctoral students) or both. Reviews of graduate group degree programs are conducted by Graduate Council as part of its by-law authority. The Graduate Council selects from among its members a sub-committee consisting of a minimum of two faculty members and a Graduate Council student representative whose disciplinary expertise is analogous to the Graduate Group under review. The Graduate Council Chair as well as the Dean or Associate Dean of the Graduate Division join with the Graduate Council Review Sub-committee to participate in the review. The review process is coordinated by a Graduate Division Assistant Dean who also attends the review meetings and provides advice as needed.

There are five phases to the review: (1) self-review of the program by the Graduate Group's core faculty; (2) possible requests for clarification by the sub-committee or Graduate Division; (3) separate interviews between the Graduate Council reviewers and representatives of the program's students and faculty; (4) the Graduate Council's report and recommendations to the Graduate Group; and (5) the Graduate Group's response, if requested, to issues raised by the Graduate Council review.

During the first phase, the Graduate Group program faculty are requested to write a report responding to the list of self-review questions which are sometimes modified to address particular concerns regarding a graduate group. The program utilizes Graduate Division statistical documents (see Appendix G in Institution-Selected Exhibits) concerning time-to-degree, applications and enrollments, diversity, student support, as well as aggregated anonymous student input from entry, mid-career, exit, and program review surveys to inform the group's self-review report. During the second phase of the review, the sub-committee studies the faculty report, student survey results, and statistics concerning the group. At this time the reviewers may request additional information or clarifications from Graduate Group faculty, if any are needed, to assist them in preparing for the review meeting. The third phase of the review process consists of two sequential interviews between the Graduate Council review team and (1) the Graduate Group's students representing different points of the graduate career, and (2) its faculty representatives.

In the latter phases, the Graduate Council sub-committee reports its findings to the Graduate Council with its recommendations. Following presentation of this report, the Graduate Council deliberates as a whole and finalizes the content of the final approved report to be sent to the Group. As noted above, if the Graduate Council's report delineates issues to be addressed, the Graduate Group's faculty are asked to respond.

Not only has the Graduate Council review prompted improvements to these widely ranging programs, it has also led to the discontinuance of five interdisciplinary degree programs in the last ten years that were unable to sustain the standard expected of the Berkeley student experience. In cases where programs are discontinued, concerns frequently focus on the quality of advising and mentoring, as well as faculty breadth and the availability of sufficient junior faculty members to carry the program into the future. The discontinuance of the Ph.D. in Ocean Engineering led to the discipline becoming a concentration within the Mechanical Engineering Ph.D. program as a direct result of the Graduate Council's review actions. Faculty from the discontinued Joint Ph.D. in Jewish Studies plan to propose a designated emphasis program for approval by the Graduate Council in Fall 2013. Other programs, such as the Ph.D. in Agricultural and Environmental Chemistry, were discontinued due to changes in the field and the emergence of other doctoral programs in the interim that were closer to the interdisciplinary shifts.

Undergraduate and Interdisciplinary Studies Program Reviews [CFRs 2.1, 2.7, 4.4, 4.6, 4.7]

In 2010 the College of Letters & Science Executive Committee, in partnership with the Dean of the L&S Undergraduate Division, standardized and enhanced the protocols for the academic review of Undergraduate and Interdisciplinary Studies (UGIS) teaching programs, bringing them more in line with departmental program reviews. Revisions included the establishment of a set review cycle, the participation of an extramural member in each review team, the inclusion of the Budget Committee as well as the Committee on Educational Policy from the Academic Senate, and greater transparency and interactivity with the unit under review. The outcome of reviews is shared with the Dean of L&S Undergraduate Division, the Academic Senate and the VPTLAPF.

These majors are stand-alone, interdisciplinary, undergraduate degree-granting programs that attract a diverse student body who are interested in engaging in contemporary trends in the social sciences. The eleven programs support approximately 1500 majors in the Undergraduate Division. To date five programs have been reviewed under the new regimen: American Studies, Interdisciplinary Studies Field Major, Peace and Conflict Studies, Political Economy and Cognitive Science. The L&S Executive Committee manages the reviews and makes recommendations to the individual major, which must report on its implementation of recommended changes. Recently, for instance, Peace and Conflict Studies was charged with reducing the number of concentrations within the major, which it did, dropping them from six to four. The UGIS programs tend to draw heavily on the teaching expertise of long-time non-Senate faculty, whose institutional memory and dedication often anchor the curriculum, and on Senate faculty from across the campus whose research interests are interdisciplinary. As a program ages, the engagement of ladder-faculty stakeholders may diminish, especially in the position of program director. The latter development is spurring efforts to update the programs' curricula by involving younger faculty in their teaching corps and advisory boards. Of note, the recommendation to increase ladder faculty involvement in the Interdisciplinary Studies Field (ISF) major and to rethink the curriculum is being supported institutionally by a 2013-14 Presidential Chair Fellows Curriculum Enrichment Grant.

With the establishment of protocols for the review of the Undergraduate and Interdisciplinary Studies teaching programs and the standardization of a review schedule, all existing academic programs on campus are reviewed at least approximately every nine years, with Graduate Groups reviewed approximately every six years.

Review of New Degree Programs and Courses

The UC Regents have delegated to the Berkeley Division of the Academic Senate's Divisional Council (DIVCO) the authority for approving at the campus level new courses at all degree levels and academic programs at the undergraduate level only. In the case of new academic graduate programs, the campus makes a recommendation to the system-wide Coordinating Committee on Graduate Affairs (CCGA) and Academic Council. Upon their approval, the proposal is forwarded to the UC Office of the President which has final authority. In the Berkeley Division of the Academic Senate, the Graduate Council (GC) has primary responsibility for reviewing graduate programs, the Committee on Educational Policy (CEP) has primary responsibility for reviewing undergraduate programs, and the Committee on Courses of Instruction (COCI) has final approval authority over individual courses.

New Degree Approval Process [CFRs 2.1, 4.4, 4.6]

For undergraduate majors, proposals are initially developed by small groups of faculty, a single department or multiple departments, in response to new developments in the field or an understanding of evolving career paths. Once a proposal is endorsed by the unit's faculty, it is reviewed by the Executive Committee of the College which makes a recommendation to the dean. The dean of the college forwards the endorsed proposal to the Office of Planning & Analysis, which reviews it and sends it to the Academic Senate. The Committee on Educational Policy (CEP) and the Budget Committee (BC) review the proposal and make a recommendation that is sent by DIVCO to the Vice Provost for the Faculty, who has final authority for the establishment of new programs. The development of a Chemical Biology major within the College of Chemistry illustrates the process. In response to interdisciplinary developments in the field, engaged faculty and undergraduate students determined that there was a need for a major

that better connected chemistry students with biological applications. The faculty developed the proposal for a new major, which was reviewed by the Chemistry Department, the College of Chemistry, and the Academic Senate and was approved by the Vice Provost. This tiered process of review ensures the excellence and viability of the program. Once the Chemical Biology major was introduced, it quickly became one of the fastest growing and most popular majors on the Berkeley campus. This case demonstrates how faculty engaged in cutting-edge research and its dissemination and, responsive to students' interests, initiate programmatic change which is supported and institutionalized by the campus.

At the graduate level, new graduate degrees are developed by departmental faculty or, in the case of interdisciplinary programs, cross-departmental groups of faculty. This is done in coordination with the Graduate Division to ensure that proposals address the necessary elements of establishing a new degree program according to the format guidelines of the UC system's faculty Coordinating Committee on Graduate Affairs (CCGA). If the new program is to be a self-supporting program, Berkeley's Budget Office similarly provides guidance and advice concerning the UC system's requirements regarding the budget that must be submitted as part of the proposal's consideration. The faculty of the relevant department(s) review and must vote on whether to approve the program being proposed, and this vote is reported to the Academic Senate. In some cases, there may be additional review beyond the departmental level, depending on the internal approval process. For example, the College of Engineering has a protocol that mandates that an Engineering department's proposal be additionally reviewed by its college-wide curriculum committee. Once the proposal has been vetted and approved by all internal protocols related to the department or school, the graduate degree proposal advances to the next stage of final Graduate Division review for completeness prior to being forwarded for campus Academic Senate review: first by the Graduate Council and then by the Budget Committee and the Committee on Educational Policy. Reviews are comprehensive, not only evaluating the academic quality and integrity of the program, but also feasibility, operational needs, enrollment demand and capacity, accessibility, financial sustainability, and impact on other degree programs. Input from the Senate committees is reviewed by the Divisional Council and a recommendation is made to the Vice Provost for the Faculty who forwards it with her assessment for review by the CCGA, which is composed of faculty from the Graduate Councils of all ten UC campuses. The CCGA considers the intellectual integrity and currency and the potential intellectual overlap with existing programs and also involves external reviewers who are subject matter experts to assist in its assessment. This lengthy process ensures academic quality and the prudent investment of academic resources.

Online and Self-Supporting Degree Program Approval and Continuous Evaluation [CFRs 2.1, 2.2b, 2.3, 2.4, 2.5, 2.6, 2.7, 4.3, 4.4, 4.6, 4.7]

Partly in response to resource constraints, colleges and schools have been entrepreneurial in establishing revenue generating programs, such as those that are available to non-residential students through online technologies. Through development of online degree programs, Berkeley continues to fulfill the University of California's mission of access and excellence by expanding access to quality advanced degree education. The Academic Senate has been proactive in establishing new protocols and procedures to ensure that online and hybrid degree programs meet Berkeley's rigorous academic standards and that they are sustainable. The novelty of the online delivery modality has led to extensive discussion of each degree's merits, as well as to a broader discussion of the merits and feasibility of online education. Recommendations for oversight mechanisms for new online degree programs and courses, including the WASC substantive change proposal with the campus review materials, were set forth by the Academic

Senate Online Graduate Degrees Working Group in 2010. In response to a rapidly evolving understanding of online education, the Graduate Council built upon the working group's report and issued a statement on the review of online degrees in fall of 2012. The first of the online or hybrid degrees developed and proposed on the Berkeley campus was the On-campus/Online Professional Master of Public Health (OOPMPH), which was launched in spring of 2012 and delivers approximately 85% of its coursework online. Following OOPMPH, the Master of Advanced Study in Integrated Circuits (MAS-IC) program starts in Fall 2013 and the Master of Information and Data Science (MIDS) program, mentioned earlier, has been approved by the campus and by UC system-wide and is pending WASC review in late September. If granted WASC approval, the MIDS program is expected to launch in Spring 2014.

An emphasis in the review of these proposals has been the pedagogical quality of the delivery, which led to the coordinated review of online versions of on-campus courses by both the Graduate Council and the Committee on Courses of Instruction. For new online degree programs, the Academic Senate requires all courses to include course-level learning outcomes on their syllabi and the achievement of learning outcomes must be articulated to a curricular map. In addition, the review of the degree proposal includes the examination of the financial model for the degree, the implications for faculty workload, and the demand for an online degree in this area. Online programs undergo WASC substantive change review, following system-wide approval. The rigorous review process has led to a number of significant changes in the proposals, including the nature of the on-campus component, and has demonstrated the value that campus review has added to local unit innovation.

There is a clear recognition that online degrees may be distinct from traditional on-campus degrees and the Academic Senate has stipulated that heightened scrutiny be applied to on-going reviews of online degrees once approved. Senate committees presume that once we have sufficient experience with online courses and degrees that the review process will revert to the same, less burdensome standards, we use to judge the efficacy of proposals for course or degrees using standard methods of delivery. Continuous evaluation of these programs will ensure that the campus does not miss the opportunity to learn about the potential successes, and pitfalls, of online or hybrid degrees. Further, if problems emerge in these degrees, early intervention can help to ensure successful outcomes. With these goals in mind, all online or hybrid degrees are required to undergo a formal review by the Academic Senate after four years. The Graduate Council will conduct an informal annual check-in to ensure on-going evaluation in the interim.

As the first approved Berkeley degree program to deliver the vast majority of its instruction in an online modality, the OOPMPH program has been conducting a comprehensive internal program evaluation, in partnership with the Center for Teaching and Learning (CTL), to ascertain whether the intended program objectives and external educational standards set by the Graduate Council, Committee on Courses of Instruction, and WASC have been met. As the first such degree program at UC Berkeley, it has received more careful scrutiny than we believe will be necessary for subsequent programs. The OOPMPH program evaluation committee meets every three weeks to sustain the pace and momentum of the evaluation and brings program stakeholders into the process (e.g., instructors, School of Public Health library and career center staff, etc.). The committee consists of OOPMPH faculty and staff leadership group and two consultants (an assessment specialist from CTL and an instructional design specialist from Educational Technology Services). The first-year evaluation report (see Appendix D) to the Graduate Council submitted in March 2013 focused on various evaluands (i.e., the target of evaluation) including curriculum, student experience and satisfaction, achievement of student learning outcomes, and impact of OOPMPH on on-campus teaching. Randomly selected student performance data from

course-embedded exams and assignments that are mapped to program-level outcomes are compared between two equivalent groups: OOPMPH and the on-campus interdisciplinary master's program. For valid comparison, OOPMPH assesses student performance in courses that are taught by the same instructor and use the same exams and assignments. One of the findings indicated a large discrepancy between two rating criteria on student final exam items. The OOPMPH program is planning faculty and graduate student instructor workshops on rubrics and rater calibration in order to ensure that future assessment efforts will produce fair grading and trustworthy assessment results. Based on OOPMPH's first-year evaluation cycle, the CTL will produce sample templates, which will be shared with other online degree programs for use in program-level assessment.

New Course Approval and Review [CFRs 4.4, 4.6]

New courses are developed by individual faculty members, or small groups of faculty, who identify a programmatic or pedagogical need. The course syllabus is developed and reviewed by the unit's curriculum committee that evaluates course content, student demand, faculty workload and other related resource needs to ensure the success of the course. The course proposal is submitted for college-level review and then review by the Academic Senate's Committee on Courses of Instruction (COCI). If the course uses a novel delivery method, such as online instruction, COCI applies a higher level of scrutiny. COCI's new course approval guidelines for submitting proposals for online courses include supplemental questions addressing student learning criteria. Following the recommendations made by the Academic Senate, COCI also conducts a four-year review of approved courses. Again, as the faculty become familiar with effective methods of online teaching, we expect the additional review requirements to fade away. When new degrees are being proposed, all new individual courses must also be submitted to COCI for review to ensure coordination between course and curricular review.

Assessment of Student Learning

Learning in the Undergraduate Major: The Undergraduate Student Learning Initiative [CFRs 2.2, 2.2a, 2.3, 2.4, 2.5, 2.6, 4.3, 4.6, 4.7]

In our previous accreditation cycle, the introduction of student learning assessment to academic units, within the framework of the academic program review process (i.e., over a nine-year schedule), was deemed too slow and the campus was asked to accelerate its introduction. In response, the campus implemented the Undergraduate Student Learning Initiative (USLI) in 2007. Given the primacy of faculty governance in all areas of the curriculum, the campus's approach to undergraduate student learning has been faculty-driven, discipline-specific and locally owned. The USLI has led to a shared understanding of the program-specific learning goals of individual majors. We are pleased to note that the February 1, 2010 WASC Accrediting Commission letter acknowledged the progress the campus has made in establishing undergraduate educational goals and assessment procedures as "noteworthy," while recognizing the resource and cultural impediments to progress and the need to continue to "deepen faculty understanding and expertise in assessment." Since that time, we have continued to make substantive progress, as documented in the chart below, in cultivating program-level assessment practices and culture across campus, and our efforts remain ongoing.

As indicated in Figure 1, data collected in the Academic Unit Survey conducted in Spring 2013 show that 66 out of 68 (97%) undergraduate academic units have defined learning goals and 65

have shared the learning goals on their program's website. Among 68 undergraduate academic units, 51 (75%) have created a curricular map; 38 (56%) gathered and interpreted evidence of student learning; and 29 (43%) have made curricular improvements based on assessment findings.

Now that essentially all undergraduate teaching programs have established learning goals, the Office of the VPTLAPF in partnership with the Center for Teaching and Learning (CTL) has been encouraging undergraduate programs to utilize and assess direct evidence of student learning, with an emphasis on course-embedded assignments that are regular components of course requirements. Along with student perception data gathered mainly through local and campus-initiated surveys, approximately two-thirds of our undergraduate programs are gathering student work samples and culminating projects, papers, and performances to assess achievement of program-level student learning outcomes. The VPTLAPF's Office and CTL are working to assist programs in benchmarking these metrics and their application in enhancing units' current strategies for evaluating their undergraduate programs through program reviews.

Figure 1. Assessment Progress in Undergraduate Programs (*N* = 68)

- Established learning goals — 97%
- Mapped curriculum and goals — 75%
- Gathered/interpreted evidence — 56%
- Utilized results — 43%
- Not engaged — 3%

Figure 2. Evidence Gathered in Undergraduate Programs (*N* = 66)

- Culminating projects, papers, performance — 68%
- Course-embedded work samples — 68%
- Student perceptions/reflections — 63%
- Observations of student performance — 46%
- Institutional data — 32%
- Job placement data — 19%
- Other — 18%
- Rating of student performance by field experts — 10%
- External exams — 4%

Figure 2 shows that a wide range of evidence is being collected, with primary emphasis placed on direct evidence of student learning. Currently, 68% of the units review culminating student projects, papers, and performances; these capstone experiences (either capstone courses, projects, papers, or internships) offer program-embedded opportunities to identify students' cumulative and integrated knowledge and skills. As part of the Academic Program Review, programs are encouraged to systematically review and utilize the existing capstone student data.

As noted in Figure 3, nearly two-thirds of faculty are engaged in analyzing and interpreting assessment data and over 50% of the undergraduate faculty committees collectively engage in assessment. Though there is room for improvement in participation in assessment as a collective effort, these statistics reflect Berkeley's faculty-driven, discipline-specific, and department-centered approach to the assessment of student learning.

Figure 3. Faculty Involvement in Undergraduate Assessment

| Category	Percentage
Individual faculty	63%
Faculty Committee (curriculum, ad-hoc)	53%
Faculty as a whole	43%
External Advisory Board	9%
Other	22%

As part of the 2013 Academic Unit Survey, we gathered specific examples of the utilization of assessment findings in the major to revise courses and curriculum and to embed the use of assessment metrics into the departmental culture:

- The Department of Chemistry has been engaged in assessment for quite some time and plans to form a departmental Assessment Committee with rotating membership comprising faculty and staff in order to formalize assessment protocols and embed assessment practices into the departmental culture.

- The Nuclear Engineering Department has been surveying students' perceived achievement of learning outcomes in each course since 2000. The longitudinal data are reviewed annually at a faculty retreat. Recently, the assessment data led to the faculty's providing more opportunities for student oral presentations and technical writing in its curriculum. Nuclear Engineering also has an Advisory Committee that reviews program-level goals and the curriculum to ensure that they meet the current needs of employers.

- The Department of African American Studies, with support from a USLI grant, collected and analyzed student learning and curricular data, including course syllabi, student work, and student learning perception. These data were analyzed in relation to opportunities students had to engage and master the learning goals of the major. Findings led to (1) identification and rectification of areas of potential content overlap between courses and (2) adjustments to the curriculum to ensure that students have ample opportunities to engage with research and writing over multiple courses.

Another example of assessment leading to programmatic change is from our largest, most popular, and most rigorous undergraduate minor, the Global Poverty and Practice (GPP) Minor. In 2012, GPP successfully applied for a USLI Grant available to academic units to support curricular improvement. It used the grant to evaluate its learning goals, curriculum, and advising program. GPP focused on assessing nine out of 16 learning goals that featured four key skill areas: analytical, practical poverty alleviation, communication, and citizenship. Three selected course-embedded assignments were gathered from a cohort of 41 students. The findings from student work samples led to a series of curricular changes. For example, the following programmatic changes resulted: (1) GPP minor-degree learning outcomes were revisited and revised; (2) a curricular map was developed; (3) a student portfolio was instituted across courses; (4) a pedagogical document was developed that outlines critical and reflective questions for students to ask during their Practice (field) Experience. In addition to tangible changes, the process of assessment had an added benefit of bringing faculty and staff to arrive at a shared understanding of the foundational motivations and aspirations of the program. The GPP faculty and staff plan to carry on assessment activities and discuss findings annually in faculty and staff retreats. For further details, see full grant report (see Appendix E).
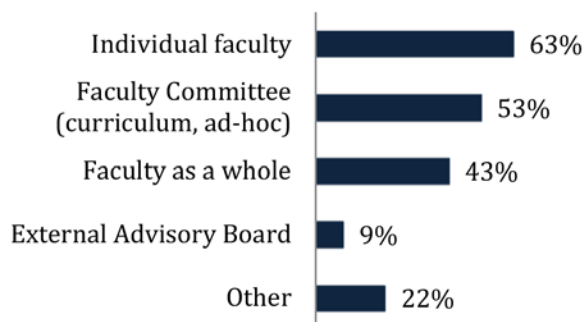
Overall, the campus has made significant progress, and this progress is all the more noteworthy because the initiative was launched during a period of significant resource constraints, downsizing of staff support in academic units, and organizational change, which placed pressure on our faculty. In addition, as in many research universities, while faculty are experts at assessing student learning in their disciplinary contexts, they are not always conversant with educational research and the language of assessment and can even be reluctant to engage in such activities when labeled as such.

As we move forward with the institutionalization of learning assessment, we are focusing on meeting departments where they are and encouraging the use of evidence collected to make improvements to the curriculum that are meaningful and address genuine faculty concerns about student learning, as a method of closing the feedback loop. Some of these efforts are being supported through the new Presidential Chair Fellows Curriculum Enrichment Grant Program, launched in 2013. We have now regularized and institutionalized the USLI as part of the Academic Program Review process. As part of the Academic Program Review process all departments are asked to engage in student learning assessment and to address it in their self-study. Units undergoing review are asked to revisit their learning goals to ensure that they are current and integrated across all undergraduate learning tracks. With the hiring in 2012, of an assessment specialist whose services are available to units, we are optimistic that the number of units instituting assessment measures will increase significantly. External Review Committees, visiting teams of scholars from peer institutions recruited for each program review, are asked to consider learning goals and their assessment in their charge letter. The Academic Senate's Committee on Educational Policy is especially engaged in issues regarding undergraduate education and is one of the five Senate committees with membership in the Program Review Oversight Committee; each committee designates a representative to participate in each program review.

The Undergraduate Breadth Curriculum [CFRs 2.2, 2.2a, 2.3, 2.4, 2.5, 2.6, 4.3, 4.6, 4.7]

Assessment of student learning has focused primarily on the upper-division major since 2007. More recently, however, the campus has initiated an important and overdue discussion of student learning in relation to the breadth curriculum and general education. The 2010-11 Letters and Science Faculty Forum on Undergraduate Education issued a report, "Re-imagining Undergraduate Education at Berkeley," which among other things called for a reconsideration of what constitutes breadth and how best to structure breadth requirements. The Letters and Science Executive Committee, which has oversight responsibility for breadth in the College of L&S, has responded to the report by reviewing existing breadth requirements and issued a position paper in December 2012. The paper was revised and updated in April 2013 (see Appendix F) based on meetings with groups and individuals, including the Council of Deans, the Council of Undergraduate Deans, Department Chairs, L&S Deans and L&S advisors. Questions concerning the breadth curriculum were included in the 2013 Academic Unit Survey, at the request of the L&S Executive Committee. The Committee also conducted a campus-wide survey of faculty in L&S and other colleges in spring 2013 to identify the faculty's understanding of the value and objectives of breadth, the current criteria for breadth curriculum, and the status of student advising on breadth. Based on survey results, the Committee will revise its position paper again in September 2013, proposing a major effort to coordinate and clarify breadth, to assess the efficacy of breadth requirements, and to institute systematic peer, departmental, and college-level advising on breadth. During the 2013-14 academic year, the L&S Executive Committee will continue to engage faculty across campus in discussing the purpose and oversight of breadth in undergraduate general education at Berkeley. We expect to have significant progress to report

over the next two to three years with regard to the assessment of the undergraduate breadth curriculum.

Assessment of the one, common campus graduation requirement, American Cultures (AC), has already been instituted. AC courses are offered in more than forty departments in many different disciplines at both the lower- and upper-division levels and follow a common framework. For the past three years, the American Cultures (AC) Center has been running a large-scale pre-post survey each semester with all AC/American Cultures Engaged Scholarship courses to capture the impact of the AC and ACES programs on student learning. The survey captured the impacts of inequality content and community-engaged scholarship in AC/ACES courses on the following five learning outcomes: participation (Westheimer & Kahne, 2004), openness to multiple perspectives (Gurin, Nagda, & Zuniga, 2011), active thinking (Gurin et al., 2011), justice-orientation (Westheimer & Kahne, 2004) and structural thinking about racial inequality (based on Lopez, Gurin, & Nagda, 1998 and Gurin et al., 2011). Results[3] indicated that AC/ACES students in courses with above-average levels of inequality content—content on how structural inequality is reproduced through laws, policies, and cultural practices—finished their courses with higher levels of all five learning outcomes. In regards to community-engaged scholarship, students in classes with high levels of this pedagogy and high levels of inequality content showed gains in three learning outcomes: participation, justice-orientation, and active thinking. The findings indicated the critical role of content regarding inequality in AC/ACES courses in developing positive civic-engagement learning outcomes. The results of this study were shared with faculty in the 2013 summer institute for faculty teaching in the engaged scholarship program. Further, the AC Center plans to design a workshop based on these findings that will be open to all American Cultures faculty.

Beyond the current breadth requirement structures, Berkeley has already begun to experiment with novel approaches to breadth, which provide faculty and students options for additional flexibility and creativity in enriching general education. Through the Townsend Center, Course Threads such as Sciences and Society, allow students to flexibly develop programs of study that are built around intellectual themes that span departments or disciplines. This program highlights connections between existing courses so that students can recognize and develop depth in their program of study while simultaneously achieving educational breadth. The threads consist of a set of three linked courses and a year-end symposium, which serve to reinforce the depth of study and to establish a community of peers with similar interests. In a related effort, the College of Letters & Science has launched a set of Big Ideas Courses that address fundamental ideas that span multiple disciplines and are co-taught by faculty from more than one distinct discipline. The Big Ideas Courses concept clearly resonated with our faculty: some of our most outstanding scientists and scholars leapt at the chance to work across the disciplines on courses that they had only dreamt about before the College offered support for these innovative courses. For instance, Nobel Laureate Saul Perlmutter teamed up with a philosopher and a social psychologist to create and teach a highly interactive course called Sense and Sensibility and Science, which is highlighted in the new Big Ideas Courses video. Talking about his ultimate goal for a course of this nature, Professor Perlmutter has said,

> When I've been talking to my two colleagues, Rob [MacCoun] and John [Campbell], about the
> course, we all have this slightly grandiose idea in the back of our mind that someday every

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[3] The survey study was conducted by Cynthia Gordon da Cruz, who was hired as a graduate student researcher. The study is published as her Ph.D. dissertation. Gordon da Cruz, C. (2013). *Critical democratic citizenship: The effects of community-engaged scholarship and inequality content on student learning.* Dissertation article. Harvard Graduate School of Education. Cambridge, MA.

university will teach a course like this, and every educated man and woman in the United States will all be able to talk to each other using the language and the understanding of how we approach problems in the world, that you would learn in a course like this. And when they show up some day in the future jury or in a future committee meeting when they're a legislator in Congress, they will all start to say to each other, 'Oh, we can't approach the problem this way. That's a classic failure mode that we all learned about in college. Now we're going to do this in a much more productive, interesting way.' I don't know whether that dream could ever happen, but I think it's worth building towards. It's worth a try.

Through these innovative efforts, Berkeley is leading the way in re-thinking how curriculum and courses can lead to a broad, interdisciplinary education.

Graduate Degree Programs [CFRs 2.2, 2.2b, 2.3, 2.4, 2.5, 2.6, 4.3, 4.6, 4.7, 4.8]

Significant progress has been made in the development of program-specific learning outcomes for graduate education across the Berkeley campus. After much consultation, the Graduate Council approved a statement on guidelines concerning general graduate program outcomes (GPOs) in May 2013. With reference to long-standing Academic Senate guidelines for excellence and its further elaboration upon graduate standards, the Graduate Council distilled learning goals into six GPOs, which weave throughout graduate education at Berkeley. On the graduate level, the outcomes are program-specific, rather than course-specific, as the graduate degree is not the sum of the courses involved. (However, the required core courses of the program are also reviewed with the following GPOs in mind.) The GPO numbers do not represent an order of importance but more closely pertain to growing skill development along a student's graduate career trajectory:

GPO 1: **Advanced Knowledge**: graduate students will have and be able to apply advanced knowledge in specialized areas defined by their graduate program;

GPO 2: **Methods**: graduate students will have and be able to apply skills in appropriate methods of analysis, whether quantitative or qualitative, or both, to collect and integrate information in ways consistent with the highest standards of their discipline;

GPO 3: **Research**: graduate students will conduct research that results in an original contribution to knowledge, according to the standards of their discipline, including as appropriate both independent and collaborative research, and in conformity with all standards for responsible conduct of research;

GPO 4: **Pedagogy**: graduate students will participate in training for teaching and apply their skills in the classroom consistent with their disciplinary norms, in undergraduate or other settings in their own or other disciplines;

GPO 5: **Communication**: graduate students will have and apply skills in scholarly communication, applied in oral, text, and digital formats consistent with the highest standards of their discipline;

GPO 6: **Professionalism**: graduate students will engage with the structure of their discipline and their intended career placement as professionals, including the legal and ethical dimensions of their professions and their responsibilities to a variety of stakeholders.

The Graduate Council also specified assessment measures for programs to best determine how these objectives are being met. These measures correspond to the annual statistics (see Appendix G) that Graduate Division's institutional research experts began providing the academic units five years ago based on application, acceptance yield, and enrollment figures, student responses concerning such elements as programs' academics, clarity of expectations, advising, experience with benchmark exams and the dissertation/thesis, placement preparation, funding support and

debt level, professional development, and other comprehensive measures of program satisfaction.

Under the Graduate Council's auspices, the Graduate Division has mapped the program outcomes of each degree program and its core courses with reference to long-standing Academic Senate standards, Graduate Council guidelines, and what each program has articulated in response to the program survey as well as program websites, student handbooks, and other materials. The resulting GPO curricular maps are in the process of sending to the degree-granting units in mid-August for review to ensure that maps accurately capture learning goals. Programs will also provide any additional learning outcomes developed, which will be appended to curricular maps. The last step will be Graduate Division review of the maps and submission of a report to the Graduate Council on the outcomes. Through this process, we will be able to ensure uniformly high standards across the campus, based on existing Graduate Council standards and policies, while still capturing program-level variations and the individual nature of some programs. The Graduate Council will periodically review its program outcomes statement. The Graduate Division has posted all graduate program curricular maps for all of Berkeley's terminal graduate degree programs.

Figure 4 illustrates the response to the 2013 Academic Unit Survey concerning the extent to which programs used evidence to make curricular changes.

Figure 4. Assessment Progress in Graduate Programs
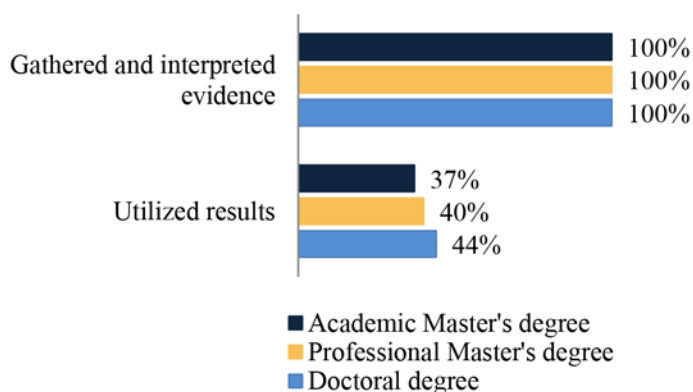
Results demonstrate a healthy utilization of direct evidence of student learning: well over one-third to nearly one-half of all programs made curricular changes based on the collection and interpretation of assessment data. These figures should be considered in parallel with Graduate Division's surveys, which have collected student program satisfaction at multiple career-points for decades. The program survey, for example, comprehensively covers the following areas: Program Satisfaction, Instructional Quality, Qualifying or Comprehensive Exam Experience, Dissertation or Thesis Experience, Experience as a Graduate Student Instructor/Researcher, Academic Practice-Scholarly Communication/Skills, Program Resources, Program Environment, General Assessment.

In the most recent graduate student survey (2009-2012), these general assessment questions received the following responses:
- If you could start again, would you select the same university? ($N = 2,039$)
  Definitely would: 51.5%; Probably would: 37.4%; Combined: 88.9%

- Would you recommend this university to someone considering your graduate program? ($N = 2,033$)
  Definitely would: 55.7%; Probably would: 33.0%; Combined: 88.7%

- How would you rate the quality of your academic experience? (*N* = 2,044)
  Excellent: 51.2%; Good 35.6%; Combined: 86.8%

- How would you rate your overall satisfaction with your program? (*N* = 2,173)
  Very or Somewhat Satisfied: 88.5%

Satisfaction with local program requirements is also very high. Only 7% of graduating doctoral students in the cohorts from 1997-98 through 2011-12 indicated that if they could "change one thing at Berkeley" it would be to "change program requirements and reevaluate requirements." Therefore, the active engagement with curricular redesign and improvement reflected in departments' and programs' responses to the 2013 Academic Unit Survey is validated by high graduate student satisfaction ratings across university graduate programs. Berkeley plans to continue to increase utilization of evidence to maintain its high standards and to improve upon them as the Graduate Council's standards and Graduate Division's annual statistical reports are increasingly understood.

Figure 5. Evidence Gathered: Master's Degree Programs (27 Academic and 26 Professional Master's)
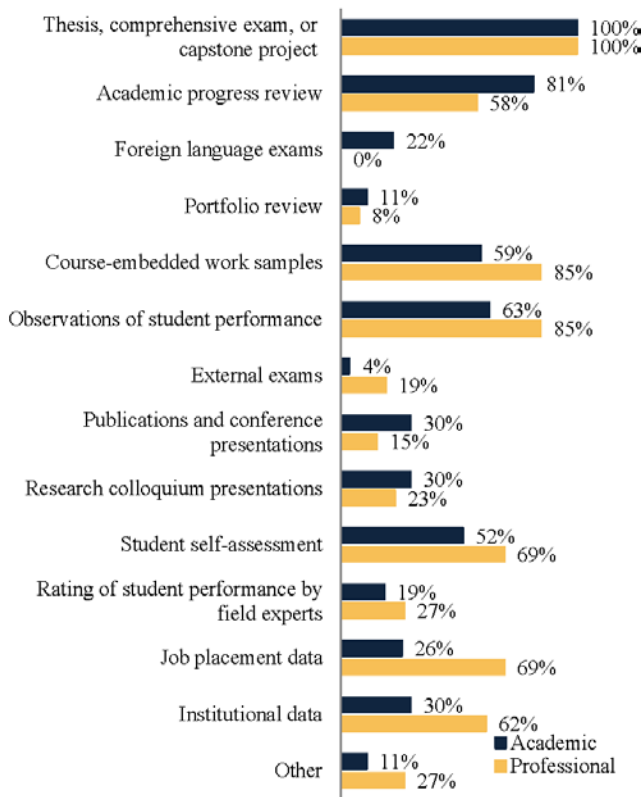
Figure 6. Evidence Gathered: Doctoral Degree Programs (*N* = 84)

We also gathered evidence of assessment practices at the master's and doctoral levels (Figures 5 and 6). Most graduate programs are intended to award a doctorate; however, the campus does offer 28 terminal academic master's degrees and 28 professional master's degree programs. All master's programs gather at least two types of evidence of student learning and make use of a variety of data, from academic progress review information, to course-embedded work samples, to student self-assessment of student learning. As compared to academic and professional degree programs, professional master's degree programs tend to gather a greater variety of evidence of student learning and to utilize multiple reviewers and stakeholders, including curriculum

committees and External Advisory Boards to review the evidence. These differences are to be expected given that a greater number of professional master's programs (73%) are subject to disciplinary professional accreditation as compared to academic master's programs (44%).

As compared to Figure 2 discussed earlier, Figure 7 (below) indicates that there is greater faculty engagement in assessing and interpreting graduate assessment data than undergraduate, which is not surprising given the essential role of one-on-one mentoring in graduate programs and faculty engagement in reviewing graduate students' yearly progress. More professional master's degree programs tend to use curriculum planning meetings as a forum for discussing student achievement, compared to academic master's and doctoral programs (see Figure 8 below). Moving assessment beyond review of individual students by individual faculty is a common challenge found across institutions in the United States (Kuh & Ikenberry, 2009)[4], and we will be encouraging dissemination of best practices in this area.

Figure 7. **Faculty Involvement in Assessment of Graduate Programs**
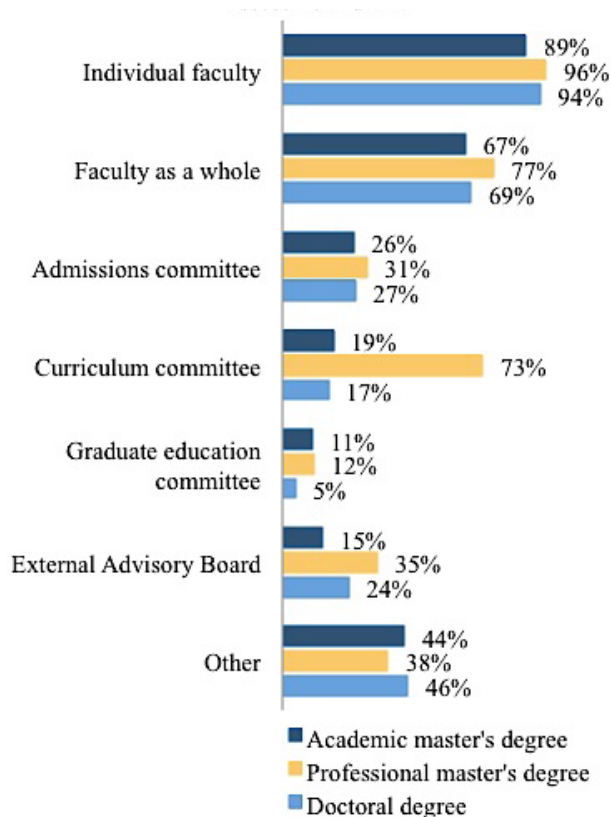
Figure 8. **Assessment Occasions in Graduate Programs**
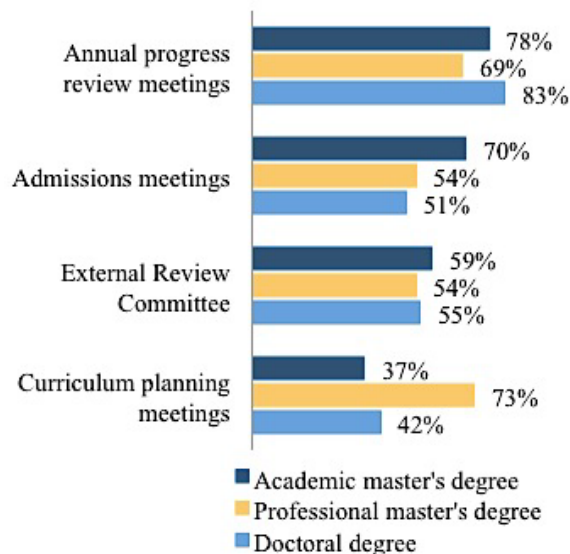
Representative examples of best practices, gathered in the 2013 Academic Unit Survey, include:
- The Graduate Group in Performance Studies relied on student perception and testimonial data through student surveys and town hall meetings. As a result of feedback, the faculty shifted student public presentation of doctoral research from the 4th year to the 5th year and changed the oral exam preparation requirements (e.g., a literature review instead of a full pre-publication paper) to better prepare students for the qualifying exam.

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[4] Kuh, G. & Ikenberry, S. (2009). *More than you think, less than we need: Learning outcomes assessment in American higher education.* Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA).

- The Department of Physics gathered student perception and demographic data, which resulted in (1) major revisions in preliminary examination goals and evaluation; (2) clear timelines and accelerated normative schedule for qualifying exams; (3) reorganization of academic advising model; and (4) modification of annual progress reports to better match expectations during different phases of graduate study.

- At Berkeley Law, a small dip in the rate of bar passage led to the identification of the need for more student support in exam-taking and studying. Numerous programmatic changes were made including (1) hiring of additional instructors to strengthen skills offerings and core courses; (2) additional sections for Advanced Legal Writing; (3) new courses on collaborative practice skills, leadership, and practitioner lab sections; and (4) new training opportunities for faculty, to name a few.

Institutional Support for Faculty Excellence in Teaching and Curriculum Development

A Culture of Promoting and Enriching Teaching Excellence at Berkeley
[CFRs 2.8, 3.4, 4.6, 4.7]

Excellence at Berkeley, while being strongly a function of individual efforts by faculty and students, is facilitated, encouraged, and extended by campus-wide support programs. These programs target in-class teaching and instruction, broader curricular considerations, and the informal educational aspects of the Berkeley experience, which include mentoring and community building. The previous sections focused on the programs that facilitate integration of research and classroom teaching and the participation of students and faculty in research and other outside-the-classroom educational activities, on campus-wide processes that ensure excellence, and on systematic campus-wide efforts to assess student learning. In this section, we emphasize the campus's role in classroom teaching and curriculum development.

Berkeley's culture of teaching excellence is pervasive and faculty-driven. We have a very distributed culture around teaching excellence that is manifested in multiple ways. Most often, ideas and opportunities are brought to the central administration and the institution then invests in teaching and curricular excellence in response to the faculty call. The Berkeley Division of the Academic Senate plays a role in the culture of teaching excellence as well, with several committees focused on setting expectations of the highest standard for teaching, for course design and for instruction. A signature example of this work, facilitated each year by the Academic Senate's Committee on Teaching, is the Distinguished Teaching Award (DTA). Since 1959, the DTA has represented the highest teaching honor Senate or non-Senate faculty could receive on campus, documenting Berkeley's commitment to fostering, encouraging and recognizing teaching excellence.

The past few years have marked a moment of cultural change at Berkeley with a renewed focus on strengthening teaching excellence across the campus, especially at the undergraduate level. Thanks to pioneering leadership by the College of Letters & Science (Re-imagining Undergraduate Education at Berkeley) and the launch of the newly re-envisioned Center for Teaching and Learning (CTL), we are actively fostering more synergy across campus to maximize the benefit of various initiatives. Berkeley is characterized by a strong culture of faculty autonomy over the curriculum and a distributed organizational culture; as a corollary, academic support programs for teaching and learning are distributed in multiple locations across

the campus, each with a unique mission and target audience. Alongside the CTL's focus on faculty enrichment in the area of pedagogy and assessment, the Graduate Student Instructor (GSI) Teaching and Resource Center has a long and distinguished history of providing outstanding pedagogical training for GSIs across campus. In addition, the CTL collaborates closely with many other units that support faculty teaching excellence across the campus. For example, Berkeley's Division for Equity & Inclusion provides resources through its Multicultural Education Program to assist faculty with classroom discussions and group facilitation as part of an effort to reach all students effectively; the Berkeley Language Center provides services for language instructors; the American Cultures Center in partnership with the Public Service Center provides support for faculty designing AC and ACES courses; and Berkeley Law and the Haas School of Business have their own support for teaching excellence. The University Library System and the ten Affiliated Libraries offer a range of services to faculty and students in support of teaching and learning. Educational Technology Services and the Berkeley Resource Center for Online Education are two critically important academic support units that provide expert instructional design support and training in use of technology-assisted pedagogy, and these efforts are discussed at length in the essay on sustainability in a changing higher education landscape. Numerous units supporting student learning are discussed in the essay on student success. All of these units together comprise a mosaic of academic support for teaching and learning on the Berkeley campus. In the sections below, we describe our efforts to ensure that the whole of programs in support of teaching and learning is greater than the sum of the parts from the way we acculturate new faculty to Berkeley to the highest recognitions we bestow upon faculty who distinguish themselves in teaching.

Teaching Excellence for Senate Faculty New to Berkeley [CFRs 2.8, 3.4]

To instill a sense of excellence in teaching as a core campus value, Berkeley's new Senate faculty participate in a year-long Teaching Excellence Colloquium (TEC), which was developed by the College of Letters & Science in partnership with the CTL, with support from external donors. Launched for the first time in the 2012-2013 academic year, the TEC kicks-off with a day-long orientation for new faculty focused strictly on teaching and teaching resources. This full-day orientation is in addition to a long-standing day-long New Faculty Orientation organized by the Vice Provost for the Faculty that is focused broadly on all issues related to new faculty, including tenure, research, and family-friendly policies. By expanding the teaching orientation from a session in the New Faculty Orientation to a full-day event with invitations issued by the deans, the campus sets the tone for the importance of teaching at Berkeley. New faculty's acculturation into the teaching and learning environment is furthered by monthly seminars. Through TEC, new faculty are given the opportunity to examine their own teaching practices, share experiences, network with academic support partners and senior colleagues outside their department, as well as from an interdisciplinary faculty community of their own as a cohort progressing through the year-long program. While new faculty learn quickly that there is no one style of teaching excellence at Berkeley, they come to appreciate that the common thread across all great teachers on campus is a commitment to continual pedagogical improvement – even after "excellence" is attained. The program is interactive, collaborative, and has garnered very positive feedback from participants in the first cohort. With support from the L&S Executive Dean and Vice Provost for Teaching, Learning, Academic Planning and Facilities, we have been able to secure ongoing and continual commitments to support new faculty's participation in TEC from each school and college across campus (excluding the Haas School of Business and Berkeley Law, which have their own teaching orientation programs designed for their faculty). Plans are underway for the 2013-14 academic year, and we expect a much greater number of faculty to participate with expansion to all colleges and professional schools.

Teaching Excellence for Faculty [CFRs 2.8, 3.4, 4.7]

Since faculty members most often call for and drive support for teaching excellence, the institution has answered that call most recently with the re-visioning and reorganization of the Office of Educational Development into the Center for Teaching and Learning (CTL) in July 2012. The newly envisioned CTL serves as a campus-wide resource for supporting and engaging Senate and non-Senate faculty as well as staff advisors to enrich, promote, and support teaching and learning effectiveness in the areas of pedagogy, curriculum, and assessment. The CTL partners with the Colleges, Schools, the Academic Senate, and other academic support units that contribute to the instructional mission of the campus, promoting excellence and innovation in teaching and learning.

Advancing a culture of teaching excellence rests not only on new faculty, but also on supporting the pedagogical development of continuing faculty. At Berkeley, support for continuing faculty around teaching excellence has been done for many years. However, now we are being more strategic about how all these efforts are linked together. Berkeley has created a range of programs that directly engage faculty in improvement efforts ranging from course-level to program-level. At the course level, faculty members are offered opportunities for individual and small-group consultation on pedagogy and assessment with subject matter experts in both the CTL and Educational Technology Services (ETS). Complementing the consultations is the Open Classrooms Initiative, which asks recent DTA recipients to open their classrooms for colleagues to observe. At the program level, we provide expertise and support for online degree program evaluation, Academic Program Review, and retreat facilitation on curriculum and assessment. Additionally, Senate faculty members are offered the chance to participate in a year-long faculty learning community program, the Presidential Chair Fellows (PCF). The PCF program, run by the CTL, has typically focused on a specific area of consideration (i.e., assessment and evaluation). The faculty exchange ideas on pedagogy, discuss questions they generate, and broaden their pedagogical horizons. The 2012-2013 cohort focused on the theme "Evaluating and Improving Student Learning." Thirteen faculty from 11 departments participated in a two-semester monthly seminar series facilitated by the participating fellows and invited speakers. The 13 fellows all indicated that they experimented with new ways of assessing student learning in their own course (e.g., developing and sharing rubrics for their assignments and exams). They also articulated an action plan, which was shared with their department chairs, to initiate and engage colleagues and their host department in developing and sharing instructional and assessment strategies that support student learning.

The 2013-2014 Presidential Chair Fellows program is being refreshed, and it will now incorporate a curriculum enrichment grant (up to $20K) for five departments or cross-departmental teams to develop, improve, transform, and evaluate core areas of the undergraduate curriculum. The selected faculty will carry out curriculum enrichment efforts that are meaningful and achievable at the department/program level that may involve curricular revision or the introduction of new curricular components that address a specific need or opportunity. Several of the grants awarded to the inaugural 2013-14 cohort of grantees address recommendations for curricular revision that emerged as a result of our review of academic programs. Grantees will "close the loop" on their curricular planning and innovation in the program by gathering evidence of student learning and experiences across courses or at the end of a degree program, and guide further improvements in the curriculum by using the evidence gathered. In addition to the monthly faculty learning community, a unique aspect of this year's program is the opportunity for graduate students supported by the grant monies to refine and hone skills in conducting assessment and program evaluation as part of their development as future faculty.

The Berkeley campus provides additional support in multiple ways and through multiple programmatic offerings. Responding to faculty members' desire for greater access to resources and learning communities, CTL operates as a nexus, or conduit, for teaching-related faculty support on campus, working directly with other academic support units to call faculty attention to the plethora of opportunities made available to them, but which may be hard otherwise to track down. CTL facilitates this through its ongoing maintenance of a recently launched online Professional Enrichment Menu of Options (PE Menu). Berkeley has also formed a Mash-Up of Academic Partners (MUAP) intended to bring the various academic support units together to share the work they are doing and brainstorm about common challenges and opportunities. The collaboration amongst MUAP partners has yielded project-based subgroups that work on specific, current topics of great relevance and importance to teaching and learning on campus. With the recent rollout of a new campus Honor Code, academic integrity has come to the fore of campus conversations. Several MUAP partners have decided to work on a special academic integrity project aimed at pooling resources into a central online space for faculty and students, as well as developing additional resources that fulfill campus needs in support of academic integrity.

Following the effective faculty learning community model employed in other programs, like the Presidential Chair Fellows, the Vice Provost for Teaching, Learning, Academic Planning and Facilities has charged a STEM Curriculum Working Group, under the auspices of the CTL, to disseminate pedagogical and curricular innovations across campus, like the two-semester mathematics sequence noted in the above section, and to engage in developing additional undergraduate STEM courses, particularly gateway or common-good courses.

Berkeley seeds instructional and curricular innovation in other ways as well. Sometimes this happens through formal programs designed to enable faculty to test, experiment, and explore new pedagogies in their courses. This is accomplished through Instructional Improvement Grants (IIG). IIGs are meant for small-scale projects to improve existing courses, develop new courses, evaluate instruction, and assess curricular needs. Awards are up to $3K. A new aspect of IIG is the ability for faculty to use IIG funds to support conference travel related to teaching and learning, with the expectation that faculty will share the knowledge gained with the Berkeley teaching community through a seminar, colloquia, blog article, etc.

Formal programs like the IIG seed innovation, but more informal programs and dialogue between faculty members are what drive innovation on a broader scale. Faculty dialogue about teaching is encouraged and fostered in multiple ways, through multiple media. Teach-Net is a faculty listserv forum for teaching-related conversation that is private to Berkeley's faculty and staff. A newly launched Berkeley Teaching Blog complements Teach-Net, providing faculty with a more public forum to share ideas, practices and experiences with teaching, furthering the campus dialogue around teaching and telling Berkeley's teaching story across campus and in the public sphere.

The range of face-to-face programs for faculty, as well as the new Dialogues: A Colloquia Series on Teaching, complement online venues for conversation. Four times a year, distinguished teachers on campus will deliver colloquia about an aspect of their work in the classroom or teaching related research, followed by open discussion with faculty colleagues. The face-to-face and online option to converse about teaching with colleagues provides opportunities for interested faculty to engage as they wish, when they wish, and how they wish. The

interdisciplinary discussion and cross-pollination that results from these dialogues is a central driver of teaching excellence and innovation on campus.

Teaching Excellence for Non-Senate Faculty [CFR 3.4]

Non-Senate faculty make special contributions to the teaching mission of the Berkeley campus and fill important roles that Senate faculty do not. Across campus, they teach unique areas of the curriculum in which they have well-developed expertise not shared by the Senate faculty, such as in foreign language instruction and in the reading and composition curriculum. In highly specialized areas such as foreign language pedagogy, non-Senate faculty are recruited following national searches. In many of our professional schools and professionally oriented colleges, non-Senate faculty provide an important linkage to practice in the disciplines. Evidence of their importance and recognizing their contributions, both the UC Berkeley School of Law and the Arts and Humanities Division of the College of Letters & Science have held events lauding the impact and service of long-term lecturers. We are also proud that non-Senate faculty are eligible to receive the campus highest teaching honor, the DTA.

Like Berkeley's Senate faculty, non-Senate faculty's efforts to achieve and sustain teaching excellence receive institutional support and programmatic offerings. Facilitated by the CTL, the [Lecturer Teaching Fellows (LTF) Program](#) provides non-Senate faculty with an opportunity to discuss pedagogical issues with colleagues from across campus in monthly seminars. LTFs meet in workshop and seminar sessions eight times (once a month) during the course of the academic year. The agenda for the year is based on topics participants wish to cover, and participants themselves lead most of the workshops. Areas of focus usually include course and syllabus design, the development of instructional and assessment strategies that support student learning, and new methods of pedagogy. There may be occasional presentations by other Berkeley faculty and staff with expertise in areas of interest to the group. A new feature this coming academic year, non-Senate faculty in the program will have the exceptional opportunity to work in teams to build teaching and learning tools, templates, and resources for both their individual courses and the entire campus community. The program will support fellows in generating dynamic tools and resources for enriching and/or innovating teaching practices on campus. The tools and resources generated will be highlighted prominently on the Center for Teaching and Learning (CTL) website and disseminated to faculty across campus. Non-Senate faculty make outstanding contributions to the high quality of teaching on campus, and this program showcases best practices from this community.

The [Berkeley Language Center](#) (BLC) is specifically geared towards language instruction and the large number of non-Senate faculty who teach languages on the Berkeley campus. The BLC was founded in 1994 to support the learning and teaching of heritage and foreign languages on the Berkeley campus and, where appropriate, the UC system. The BLC employs numerous strategies to improve teaching effectiveness and to enhance the learning environment. It has received support through the Common-Good Curriculum initiative for introductory language courses. Additionally, the BLC provides fellowships to non-Senate faculty with the equivalent of one-course release time to work on individual projects designed to further their own professional development. Research projects might include: designing and developing instructional materials of various kinds; developing innovative uses of technology; developing new course syllabi or curricular innovations or assessment plans; engaging in independent study of an area of relevant literature, including enrolling in a course of interest offered at UC Berkeley; doing an empirical study of some aspect of language learning; preparing a research paper for public presentation or publication in a professional journal. The fellowship culminates in a presentation to the UC

Berkeley language community. Past fellows have also presented their research at conferences, or published their work in established journals.

Teaching Excellence for Graduate Student Instructors (GSIs) [CFR 3.4]

In addition to the faculty, graduate students do a large amount of teaching on campus, and are equally in need of support in this regard. Guided by the Graduate Council's Policy on Appointment and Mentoring of GSIs, the Graduate Division's GSI Teaching and Resource Center provides comprehensive teaching support for new and continuing GSIs and prepares graduate students for the teaching and presentations that they may do in future academic and non-academic careers. The Center also works with faculty and departments in their role of providing teaching preparation and mentoring for GSIs in the required departmental pedagogy seminars for first-time GSIs and in individual courses faculty teach with GSIs. In its final report, the 2004 WASC visiting team described the GSI Teaching and Resource Center as "an especially important part of the teaching infrastructure at Berkeley" and as "a model for GSI development programs everywhere."

The center's programs include teaching conferences (required for all first-time GSIs as well as an additional one for international student GSIs), the online course, Professional Standards and Ethics for Teaching, which all new GSIs must complete, workshops on teaching, course improvement grants, classroom observations, and consultations. The Center's Language Proficiency Program provides language proficiency tests and courses for prospective GSIs who do not speak English as a native language and consultations and classroom observations once international GSIs have begun to teach. In tandem with the Graduate Division Academic Services unit, the Center sponsors an annual Summer Institute for Preparing Future Faculty, now in its eleventh year. Each year, the center offers a three-afternoon seminar for faculty on how to mentor and work productively with GSIs. The Center sponsors three annual award programs: the Outstanding GSI Award, the Teaching Effectiveness Award, and the Faculty Award for Outstanding Mentorship of GSIs.

New programs since the last WASC review include a Certificate in Teaching and Learning in Higher Education. In addition, the Center's How Students Learn initiative supported by external funds from the Teagle Foundation, is working with graduate students and faculty to assist them in implementing teaching practices that are informed by the research on learning. Most recently the Center co-directs the Graduate Division's Student Mentoring and Research Teams (SMART), a summer program in which graduate students mentor undergraduates in research.

Some specific changes made since the last WASC review include:
- All first-time GSIs are required to participate in a day-long professional development conference before teaching; take a semester-long course on teaching taught by their department; complete a five-module online course on professional standards and ethics in teaching.

- Continuing GSIs whose 300-level course did not include the development of skills needed to teach Reading and Composition (R&C) courses must enroll in either a 300-level course in another department tailored to teaching R&C or the short course taught in the spring by the GSI Teaching and Resource Center prior to or concurrent with teaching an R&C course.

Berkeley is far ahead of other universities in its policies on GSI preparation for teaching. For example, the online ethics course designed and updated annually by the GSI Teaching and Resource Center with input from other campus units is unique nationally.

Teaching Excellence through the Academic Personnel Review Process[5] [CFRs 3.3, 4.6, 4.7]

Teaching and mentoring effectiveness is one of the three primary criteria (along with excellence in research and service) used in the evaluation of ladder faculty during the merit and promotion reviews. Teaching is formally considered in the review of faculty performance, which normally occurs every two, three or four years, depending on rank and step, for all faculty, non-tenured and tenured. The continual focus on teaching performance reflects the commitment of the institution and its faculty to deliver the highest quality instruction and to meet the needs of students at all levels (lower division, upper division, Masters and Ph.D.). In order to make a principled case for teaching effectiveness, the Academic Personnel Manual (APM) allows for a broad range of evidence, although traditionally departments have tended to rely most heavily on end-of-term student course evaluations. To improve upon this practice, and to consider better ways in which Berkeley can promote and enrich teaching excellence for academic personnel reviews, we are piloting a campus-wide move from paper-based to online evaluation of courses, which will improve the quality of end-of-term course evaluation questions and the analysis and comparability of data across units, by bringing higher and more consistent standards to processes and protocols used in collecting and analyzing course evaluation data. We are also exploring how best to utilize additional forms of evidence of teaching effectiveness called for under the APM.
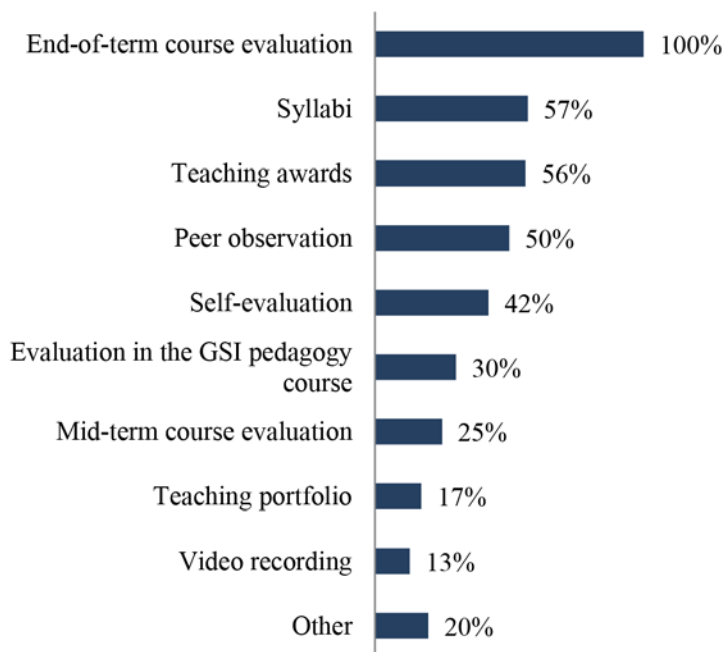
Academic reviews of individual faculty members include assessments of teaching effectiveness in each course offered during the period under review. These evaluations often rely heavily on students' numerical and verbal responses to a wide range of questions about the organization of the course, the clarity of presentations, the extent to which the course was intellectually challenging and stimulating, and the extent to which the instructor was an effective teacher. We have an ongoing effort to shift these evaluations from a paper format to an online format in an effort to reduce the administrative burden of evaluation while improving the quality of the information transmitted to faculty about student perception of their effectiveness. Currently, over 100 different end-of-term student course evaluations are in use across the campus. The lack of standardization makes it difficult to evaluate faculty in comparison to others and across departments, and the campus is unable to conduct institutional research on teaching effectiveness more broadly across campus. Involving faculty in the strategic planning for moving to online evaluations from its inception, and addressing their concerns throughout the pilot, we have had some very positive results thus far. With more standardized evaluations, it is easier to evaluate teaching effectiveness on an individual level by comparison with other faculty on campus. Also, greater standardization of course evaluations creates the opportunity for the data to be used for institutional research on teaching effectiveness more broadly. Instead of 100 different surveys, we have created roughly 13 different course evaluations based on course size, type, and discipline. The pilots have yielded strong student response rates, ~67-68%, meeting on average the two-thirds minimum response rate stipulated under the 1987 Academic Senate's Policy for the Evaluation of Teaching. Berkeley is still exploring ways to motivate students to complete the online evaluations in order to raise the response rate, but initial pilots have been promising and we will continue to scale this effort. An online course evaluation system will be in place for a

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[5] Other policies pertaining to the evaluation of teaching for non-Senate faculty are available on the Academic Personnel Office website.

limited release with pilot departments Fall 2013 and a general campus rollout will occur Spring 2014.

Not only does the Academic Personnel Manual call for a broad array of evidence to be utilized in academic personnel reviews, but also we recognize that end-of-term student course evaluations are not enough to make a case for teaching effectiveness that would most accurately recognize exceptional teachers. To this end, the campus has collected evidence as part of the 2013 Academic Unit Survey that shows that there is actually a broad range of evidence in use. Figure 9 shows that more than half of our academic units determine teaching effectiveness through syllabi review, teaching awards, and peer observations, in addition to end-of-term course evaluations.

Figure 9. Evidence for Teaching Effectiveness (*N* = 116)

We continue to investigate how units garner additional evidence of teaching effectiveness and how it is used in reviews. As that is explored, and guiding practices disseminated, some departments are taking it upon themselves to partner with academic support units in an effort to better assess teaching effectiveness. This past spring 2013 semester, the Dean of the L&S Division of Physical Sciences and the Department of Statistics, in partnership with the CTL, piloted use of peer review of course instruction as part of Senate faculty Mid-Career Appraisal and promotion reviews. In close collaboration with the department chair, the CTL created forms to be used for the pre-review of course instruction and for the peer review itself. The peer review forms were first approved by two faculty coming up for merit review in the Statistics department, then the forms were further refined and given a stamp of approval by the Academic Senate's Committee on Teaching. The effort to utilize additional forms to document teaching effectiveness has garnered so much interest, that it has been selected as a breakout session in the August 2013 Deans and Chairs Retreat. The CTL has created a Guide to Peer Review of Course Instruction to inform departments and faculty interested in utilizing universal best practices for peer review. As evident here, a standing campus policy to emphasize teaching as a part of faculty performance reviews, has been enhanced by local innovation and faculty leadership. This best practice will be broadly disseminated through the CTL, and we are investigating ways to scale it across the campus.

Teaching Excellence through Recognition and Reward [CFRs 2.8, 3.4]

Evidence of the broad and enthusiastic support for teaching excellence at Berkeley, the Distinguished Teaching Award is one of the most prestigious faculty awards on campus. The Distinguished Teaching Award (DTA) is the highest honor for teaching at Berkeley and since 1959 has recognized individual excellence in teaching that "incites intellectual curiosity in students, inspires departmental colleagues, and makes students aware of significant relationships

between the academy and the world at large" (Committee on Teaching). Nominees go through a rigorous two-stage selection process conducted by the Committee on Teaching (COT). The selection of nominees at each stage is informed by a broad range of evidence, including supporting letters from the department chair and from colleagues, end of term student course evaluations, grade distributions across courses, and peer observation of teaching by the COT members. Both Senate and non-Senate faculty are eligible for the award. Each year, a small number of Berkeley teachers are recognized with this award (typically three to five of the over 2000 Senate and non-Senate faculty on campus), which culminates in a campus-wide ceremony and a series of talks by the honorees. These talks, and publication of the honorees' essays on teaching, provide input to teachers all across campus, and provide a model for instructional improvement and innovation. Additionally, recipients of the DTA participate in the Open Classrooms Initiative, where they welcome colleagues across the campus to come and observe them teach. This demystifies what "excellent" teaching looks like, and promotes a dialogue about teaching that is grounded in observed and observable techniques, strategies and practices.

While the DTA is recognized as the seminal teaching honor bestowed on campus, many units recognize outstanding and exemplary teaching as well. For example: Graduate Division's Sarlo Distinguished Graduate Mentoring Award and Graduate Assembly's Faculty Mentor Awards, The Earl F. Cheit Award for Excellence in Teaching given by the Haas School of Business, Electrical Engineering & Computer Science's Electrical Engineering Division's Outstanding Teaching Award, Computer Science Division's Diane S. McEntyre Award for Excellence in Teaching, and Jim and Donna Gray Faculty Award for Excellence in Undergraduate Teaching, Department of Chemical Engineering Teaching Award, College of Letters & Science Social Science Division's Distinguished Teaching and Service Awards, The Professor Norman Jacobson Memorial Teaching Award for the Townsend Fellows Program, and College of Letters & Science Division of Arts and Humanities Divisional Distinguished Teaching and Service Awards.

Recognition and reward for excellent teaching at Berkeley extends to the Outstanding Graduate Student Instructor (GSI) Teaching Award. The Outstanding GSI Award gives campus-wide recognition to those GSIs who have demonstrated excellence in teaching. In addition to certificates of distinction and a celebratory ceremony in the spring, award recipients receive a $250 stipend, sponsored by the Dean of the Graduate Division to honor outstanding GSIs. Nominees are chosen by departments, based on criteria that include their overall effectiveness as an instructor, capacity to promote critical thinking, skills in presenting course material, utilization of pedagogically effective approaches, skills in developing course materials that promote learning, command of the subject area, ability to motivate students, and engagement in departmental and campus-wide activities that enhance teaching and learning. The rigorous process of nomination and selection, conducted by departmental review committees and the GSI Teaching and Resource Center, draws on evidence of teaching effectiveness such as evaluations submitted by students, letters of nomination by faculty or students, classroom observations by faculty, and documentation of teaching excellence submitted by GSIs (e.g., course materials, a statement of teaching philosophy, a teaching portfolio).

The importance that Berkeley places on the faculty-student connection is reflected in the wide array of awards granted to faculty for their outside-the-classroom mentoring, outreach and educational efforts. These awards, which include Distinguished Research Mentor, Distinguished Faculty Advisor, the Distinguished Faculty Graduate Student Mentoring Awards, Mellon and Library awards for mentoring and American Cultures prizes, reward faculty for their engagement

outside the classroom with the broader educational experience of students on the Berkeley campus.

There are, however, more ways to recognize and reward teaching excellence than through award programs. Recently, Berkeley has created The Berkeley Collegium, which consists of ten endowed chairs focused on undergraduate education. The mission of the Collegium is to foster innovation and excellence in undergraduate teaching and curriculum at Berkeley. Its members are among Berkeley's most creative, inspiring, and effective teachers, and the Collegium will provide this group of exceptional faculty members with resources for initiatives that will elevate the importance of teaching and curricular innovation, especially at the undergraduate level, across the campus. The Collegium will lead to the identification and development of new ideas, such as innovative ways to introduce research methods to undergraduates, support their implementation, and assess their success. It will also partner with other campus organizations that would benefit from its advice and assistance. Through its work, the Collegium will play an integral role in promoting and enriching instructional excellence by recognizing Berkeley's best teachers and teaching practices, and then working with other campus organizations to create tailored programming that would further encourage the dissemination and production of excellence in teaching at the course, curricular, and program levels.

Through all the institutional efforts enumerated here, we are facilitating discussion of teaching excellence and piloting initiatives to foster a cultural shift toward greater understanding of and accountability for teaching excellence commensurate with our path-breaking research. While the faculty establish the criteria for academic and intellectual progress of the students, and engage deeply in evaluating the effectiveness of the curriculum and of their pedagogical approaches that inspire students and encourage their curiosity, the ultimate goal of our efforts is to have each student take responsibility for their education – for each to see her or himself as a member of the scholarly community, to begin not only to question but to devise ways to investigate and ultimately shape the answers. Independence of mind and the capacity to continue to question and learn is the mark of a Berkeley graduate.

Student Success: Fostering Access and Excellence

UC Berkeley is a leading research university, with a deep commitment to the principles of excellence, access, and affordability, and a long record of public service. This identity shapes our definition of student success, over and above the obvious expectation of high graduation rates. As a research university, we expect our students, whether graduate or undergraduate, to learn that knowledge is not static. We succeed when our students graduate with a strong sense that there is always more to be learned and discovered, as well as confidence that they have the skill and expertise needed to continue building their own framework of knowledge and its applications, throughout their lives. These characteristics strongly influence both the next steps that our students take after graduation, and their subsequent accomplishments. While we do not expect all graduating baccalaureates to go directly to graduate school, we expect many to do so, and many more to pursue graduate studies at some point in the future. We also expect those seeking immediate employment to pursue careers that use their intellect, reasoning and analytical capabilities.

Berkeley enrolls more than 26,000 undergraduate students and nearly 10,000 graduate students in a full spectrum of disciplines across fourteen schools and colleges. We are renowned for rigorous academic standards and a rich student learning experience. We believe education is a transformative experience, empowering students to become engaged global citizens and leaders. We aim to provide a student experience that will be reflected in each student leading a successful life. Berkeley graduates are successful by many measures as illustrated by the [UC Berkeley Wall of Fame](). They are creators of new knowledge. Twenty-eight Nobel prizes have been awarded to Berkeley alumni. Many other alumni have been recognized for their work, receiving Pulitzer Prizes, Field Medals, Turing Prizes, and MacArthur Fellowships. Some have won Academy Awards and Emmys, and they are successful athletes, winning Olympic medals and playing professional sports. They are political leaders: Berkeley counts among its graduates several heads of state as well as a number of governors of California and a recent governor of Michigan. Berkeley graduates have served on the California and the U.S. Supreme Court, in Congress, and in the state legislature. A number of mayors and council members throughout the state were educated at Berkeley. Still others are in high positions in federal and state agencies. Berkeley graduates have founded Fortune 500 companies and many more have started small businesses that thrive. Berkeley has had more alumni (3,544) volunteer for the [Peace Corps]() and more participants in [Teach for America]() than any other institution in the country. Countless others are professors, teachers, doctors, attorneys, and local business leaders. Many have founded nonprofit organizations to improve the quality of life for others here and abroad.

We are proud of our graduates and steadfast in our commitment to provide each successive class of Berkeley students with the support they need to thrive at Berkeley and after graduation. We believe that satisfied and successful alumni add value to society and form a loyal core of support that will preserve and enhance Berkeley's stature.

Selective and Holistic Admissions [CFR 2.12]

Our commitment to excellence is seen in both our competitive student selection processes and in the rigor of our instruction. The latter was discussed earlier. The former has a strong impact on student success. In keeping with the Master Plan for Higher Education, admission into our

undergraduate and graduate programs is very competitive. However, we take great pride in using holistic admission review processes that do not depend exclusively on grades or standardized test scores. Instead, we consider the broad accomplishments of our applicants in the context of the opportunities that have been available to them, and their educational goals. In other words, we consider the potential of our applicants. Particularly at the undergraduate level, we admit many students who have been overlooked by other highly ranked universities and benefit, for instance, from the most promising applicants from the community college pipeline. In this way we build a student body that is diverse in every conceivable metric, and provide access to students, particularly Californian undergraduates, who can benefit enormously from the education that we provide. We value the different perspectives that our non-traditional students bring to the classroom and the broader university community. And we take enormous pride in seeing these students graduate well-prepared for further study and careers that allow them to make a difference in society

In 2001, UC Berkeley was the first campus, within the UC system, to initiate a holistic approach to reviewing undergraduate applicants. The practice was adopted by UCLA in 2007. In 2011 the Regents of the University of California adopted holistic admissions as the policy of the University of California (see Minutes of Regents' January 19, 2011 meeting, p. 6) as the best approach to the selection process to fulfill the public mission of the University.

Access and Affordability [CFR 2.13]

Californians' access to study at Berkeley is illustrated by the remarkable diversity of undergraduate students. In 2011, 22% of freshmen entering UC Berkeley from California public high schools came from schools ranked in the lower 50th percentile of schools (assessed by California's Academic Performance Index). In addition to freshmen entering directly from high school, each Fall approximately one out of three new undergraduates is a transfer student. Most of these transfer from California community colleges, and bring an additional level of diversity to the campus. In Fall 2011, for example, 44% of transfer students indicated that neither of their parents had earned a four-year college degree either inside or outside of the U.S., and 25% of domestic transfer students were under-represented minorities.

Providing an affordable education is an important component of student success at Berkeley. We do not want our graduates to avoid socially impactful careers with limited financial rewards, because of student debt. A low level of debt upon graduation allows students to continue directly with graduate school should they choose, to enter public service professions such as teaching and social work, or to spend time even in substantive volunteer activities.

Berkeley's commitment to affordability is evidenced by the socioeconomic diversity of undergraduate students who study at Berkeley. In California, public high schools are assigned an Academic Performance Index (API), which ranges from 1 to 10. There is a strong correlation between the affluence of families in school districts and the API of schools. Because our admissions policy for undergraduates explicitly provides access for students from low API schools, we have a large number of low-income students compared to our peers. This is illustrated by our high numbers of Pell Grant recipients; almost 9,600 undergraduates (37% of all Berkeley undergraduates) are Pell Grant recipients—about the same number as found in the eight Ivy League schools combined (where 17% of undergraduates are Pell recipients, on average).

Despite the high levels of financial need, the University is proud that it has maintained affordability over the past decade in spite of economic turmoil and deep cuts to state funding. Two in five Berkeley students pay no tuition thanks to grants and scholarships. Berkeley also has a low debt burden – at present those undergraduates who graduate with any debt at all average around $17,200 in total debt compared to $26,600 nationally and $18,800 in California. Even more notable is the fact that roughly only 40% of undergraduate students borrow compared to the national average of 56% at public four-year colleges and universities.

Each year campus-wide competitions award multiyear scholarships and fellowships based upon merit and need. Approximately $359M of aid was distributed to 18,395 undergraduate students (58% of the total number of undergraduate students received grants or scholarships) for the 2011-12 academic year. Financial aid is also provided for Berkeley students attending Summer Sessions to support timely progress toward graduation. Participation of faculty in the interviews and evaluation of scholarship candidates indicates the importance that the campus places on these awards for recruiting and retaining the very best students. In 2013, over 120 faculty members volunteered to interview or read Regents' and Chancellor's and Cal Opportunity (CalOp) Scholarship candidates' applications. The Regents' and Chancellor's Scholarship is the most prestigious scholarship awarded to entering undergraduates. In addition to the honor of being selected, recipients have enhanced opportunities for networking with other scholars and faculty. The CalOp scholarship was established to attract and retain high-achieving students who have overcome challenging socio-economic circumstances. In addition to full financial support, scholars are assigned a faculty mentor from the Academic Senate Committee on Undergraduate Scholarships and Honors and the faculty at large. The faculty mentor guides scholars on long-term academic and professional plans. The Robert J. Birgeneau Former Foster Children Support Fund, created in 2008 by Chancellor Emeritus and Mrs. Birgeneau, highlights the extent of our commitment to access and inclusion, by providing aid over and above the normal financial aid package in recognition of the extraordinary expenses that former foster children may encounter.

Furthermore, the Office of Financial Aid and Scholarships (FASO) is developing a peer advising program with a financial literacy curriculum. FASO has created pilot programs for students highly in debt that review best practices in borrowing and financial literacy. FASO uses their own staff to do group and one-on-one counseling for students at higher risk. Because staff availability is limited, the goal of the program is to have student peers learn the curriculum and bring it to campus locations where there is demand (e.g., residence halls, student group meetings, the Educational Opportunity Program, etc.). These peer advisors will be mentored and managed by FASO counselors and will teach the program to future student peers. They will also monitor demand for financial literacy education and contribute to curricular design.

Data-Driven Analysis of Students' Success [CFR 1.2, 2.10, 4.3, 4.5]

Ensuring that students admitted to Cal are successful is a key priority of the campus. Since our last accreditation, we have invested significant resources to improve decision support to ensure that we identify key trends in student success and can make appropriate interventions as needed to improve areas where we could be doing better. In 2007, UC Berkeley launched the Institutional Data Management and Governance (IDMG) Initiative to address the challenge of making UC Berkeley's institutional data easily accessible, reliable, consistent, and secure to support better understanding of student success. Institutional data on the Berkeley campus has historically been dispersed across select units, making it difficult to run complex analyses that crossed certain subject areas and to also provide a consistent answer to a given question,

regardless of which unit on campus was responding to the question. To address these campus data challenges and needs, UC Berkeley has invested in an [Enterprise Data Warehouse](#) (EDW), which houses enrollment and persistence data for both undergraduates and graduate students, in addition to other data critical to campus decision-making (e.g., Finance, Human Resources).

[Cal Answers](#), launched in 2011, is the new reporting portal for Berkeley's EDW and includes a campus dashboard tool, available to anyone with a Calnet ID, to provide standard answers to frequently-asked questions by any member of the campus community, along with an analytical query tool to respond to more complicated or specialized questions. Cal Answers has facilitated the ability of UC Berkeley's leadership to make data-driven decisions, and provides the technical functionality that allows Berkeley's institutional research office to move beyond serving primarily as a reporting unit, to serving as a unit engaged in strategic planning, using nuanced data analysis to inform and advise important campus decisions. Cal Answers was instrumental in calculating completion and learning statistics for this WASC report.

On the UC Berkeley campus, Cal Answers dashboards allow faculty and staff to almost instantaneously see the historical graduation or retention rates for a given cohort of undergraduates and to further disaggregate these rates by race/ethnicity, gender, residency status, or entry as a new freshmen or new transfer. Cal Answers contains student data since fall 1983 and is regularly updated with new cohort information. Dashboards in Cal Answers also display headcounts and percentages, further facilitating our understanding of these student persistence metrics and our ability to evaluate UC Berkeley's retention and graduation rate data to identify areas needing improvement. Finally, for more complicated queries, such as time-to-degree, Institutional Research staff in UC Berkeley's Office of Planning & Analysis (OPA), as well as the Division of Equity & Inclusion, can bypass the predefined dashboards and run queries on the raw data. Original queries can be saved and the executable commands from the query shared, further facilitating our campus's capacity for managing and analyzing retention, graduation, and time-to-degree data. As a result of the investment in Cal Answers, our campus is now better able to determine if our students are meeting our definition of success and identify areas in need of improvement.

Course Availability and Time-to-Degree [CFRs 1.2, 4.2, 4.3]

There has been significant recent media coverage of students in public colleges and universities not being able to get into the classes needed to proceed through their programs of study in a timely manner. The cost to students is clear – longer times to graduation translate directly to the cost of earning a degree, and delay the time when the graduate starts his or her career. Time-to-degree is a key economic driver for access, in that students who stay longer accumulate more debt and pay larger opportunity costs. Less well publicized, however, is the fact that if students take longer to graduate, because they cannot get into the classes that they need, there are fewer places annually for new students. As mentioned above, Berkeley's median time-to-degree is four years, which is comparable to peer institutions. However 20% of students entering as full-time freshman take longer to complete their degree. Analysis of trends in course enrollments and course waitlists, conducted by the Undergraduate Enrollment Task Force led by the Vice Provost for Teaching, Learning, Academic Planning and Facilities, revealed a pattern of bottlenecks in undergraduate gateway courses that were delaying students.

In recognition of these compelling reasons for matching supply with demand in critical lower-division undergraduate courses, Berkeley embarked in 2010 on the [Common-Good Curriculum](#)

initiative. The initiative was devised to ensure that our undergraduate students have access to key courses that they need to declare their majors and graduate in a timely fashion. Over the last three years, the Initiative has invested over $11 million in three key curricular areas. First, we invested in the Reading and Composition (R&C) curriculum to ensure that sufficient enrollment seats were offered to enable students to satisfy the requirement before entering the junior year. The long-standing backlog of upper-division students not yet satisfying the R&C requirement has now been entirely cleared, and policy requiring completion of the requirement in the lower division is now strictly enforced. Additional investments have been made in key lower-division "gateway" courses serving STEM majors in five areas of the curriculum: Biology, Chemistry, Math, Physics, and Statistics. Concurrently, teaching laboratory spaces and equipment in the biological sciences and chemistry were expanded or refreshed to support instruction. Finally, investments in foreign language instruction have added 74 course offerings in 16 language programs. The initiative also funded a new programmatic area, American Sign Language, which was offered for the first time in 2012-13. In 2013-14, investments in all of the above areas will continue, and the Common-Good Curriculum Initiative will expand to include a key lower-division computer science sequence that serves large numbers of non-majors, meeting a substantial pent-up demand for computing skills across our student body. We are also broadening our efforts to address targeted areas of upper-division impaction, particularly in the STEM fields. The same type of data-driven decision support is being used to direct resources and to track accountability for investments to ensure that students continue to graduate in a timely fashion.

Retention and Graduation Rates [CFR 1.2]

Berkeley's goal of serving a broad and inclusive student body will only succeed and serve as an engine of social mobility if those students complete their education and graduate. As noted in our Retention and Graduation report, submitted in April 2013, UC Berkeley's retention and graduation rates have steadily improved for decades, both overall and for sub-populations. Of freshman entrants, 82% graduate within 4.5 years of entry, and 89% graduate by year 5. Berkeley's six-year graduation rate at 91% for freshmen is very high, particularly compared to AAU public peers (whose average rate is 77%). Of transfer entrants, 76% graduate within 2.5 years, and the four-year graduation rate is 90%, showing that students who enter at the junior year also experience a high degree of success. Across freshmen and transfers, graduation rates have improved over time, from 77% in 1985 to the 91% we see today. In addition, differential gaps in graduation rates by sub-populations are narrowing over time.

Gaps in retention and graduation for some sub-populations remain, however, notably for African American students, but also for Chicano/Latino, Native American/Alaskan Native, Pacific Islander, and International students. The six-year graduation rate for new fall 2006 freshmen is 91% overall, but somewhat lower for International (85%), Pell Recipient (84%), and Chicano/Latino (81%) freshman entrants from the same cohort. Also, both the four-year graduation rate for new fall 2008 African American transfers and the six-year rate for new fall 2006 African American freshmen are among the lowest, at 81% for transfer entrants and 77% for freshman entrants.

Another conceptual vantage point by which to understand relative completion rates is the impact of being on academic probation in the first year. A recent analysis found that for UC Berkeley undergraduates who are placed on first-year academic probation, graduation rates are only 60% (four-year for transfers and six-year for freshmen), compared to the overall graduation rates of 91%. Thus, it appears as if academic challenges in the first year have a lingering effect on

longer-term student success. While the numbers of students represent only a fraction of new students (~5%), this analysis was shared with campus leaders and with co-curricular and curricular advisors, particularly those who work with new students and will inform efforts to improve support in the first-year experience. Some of the academic support efforts that we can build upon are outlined in the following sections.

Berkeley Graduates' Social, Cultural, and Economic Impact [CFRs 2.6, 4.8]

To determine the postgraduate activities of the recent graduating class of students, our Career Center conducts an annual survey of Spring, Summer, and Fall graduates. Results from the 2012 cycle indicate that the largest percentage of students in the class of 2012 chose employment after graduation – 61.8% were either employed full-time or were still searching after graduation. Students matriculating to graduate school were 19.1% of the survey respondents. The remaining students were engaged in other endeavors such as self-employment, part-time employment, internship and volunteer experiences, service in the armed forces, taking a year off or other pursuits.

The UC Berkeley Wall of Fame and the Cal Alumni Awards sites give some indication of our students' outstanding service or career achievement post-graduation. Among the remarkable alumni featured on the Wall are Kenneth Taylor '59, the former Canadian ambassador to Iran whose role in helping six U.S. diplomats escape following the American embassy takeover, an event retold in the film *Argo*, and Tiffany Shlain '92, a filmmaker honored by *Newsweek* as one of the "Women Shaping the 21st Century." The UC Berkeley Office of University Relations is currently working on a report which will present the economic impact of the innovation and entrepreneurship of UC Berkeley alumni. The report will be presented to the UC Berkeley Foundation on October 11, 2013 and will be available to the public at http://founders.berkeley.edu shortly thereafter. Meanwhile, Berkeley's Office of Technology Licensing (OTL) reports that since 2007 startup companies licensed from OTL have raised over $1.3B and 65 have raised an average of $13.8M. OTL defines a Berkeley-licensed startup as a company that is founded specifically to commercialize the IP rights licensed from OTL. Since 1993, there have been more than 147 Berkeley-licensed startups.

As gratifying as these reports are, we acknowledge that we could be doing a lot more to track our alumni. We are initiating conversations about collaborating with our sister campuses and alumni associations to draft an alumni survey which would track our respective alums at five-year intervals. This would be a logical extension of the system-wide UCUES Survey already in place and would allow longitudinal tracking of student outcomes.

Equity, Inclusion, and Diversity [CFRs 1.5, 2.5, 2.10, 3.2]

As stated earlier, in 2009, UC Berkeley adopted a campus-wide Strategic Plan for Equity, Inclusion, and Diversity targeting three areas: (1) responsive research, teaching, and public service; (2) engaging and healthy campus climate; and (3) expanded pathways for access and success. The principles and goals of the Strategic Plan have been embedded in the university culture and practice in a number of ways. The guidelines in the Academic Personnel Manual, for instance, for Review Committees for appointment, promotion, and appraisal of ladder faculty have been revised to include recognition of teaching, research, professional and public service contributions that promote diversity and equal opportunity (APM-210-d). The criteria for the appointment and promotion of deans (APM 240-4-a) and chairs (APM 245) have been revised to

include responsibility for maintaining affirmative action programs consistent with University goals. The Strategic Plan for Equity, Inclusion, and Diversity also supports enhancing the ways in which the University welcomes all students and provides support for transitioning into the University's academic and social culture. Many of these support programs are described elsewhere (e.g., summer bridging, online modules, orientation courses). While these targeted areas include all students, ensuring that the needs of first-generation, low-income, and non-traditional students are met is a priority.

Berkeley's Vice Chancellor for Equity & Inclusion has identified narrowing the differential gaps in retention and graduation rates as a strategic goal. Using data from the new EDW and Cal Answers dashboards, analysts within his office, along with those in the Office of Planning & Analysis, are working with academic advisers and student services staff to identify factors responsible for differential graduation rates. As part of the campus-wide Strategic Plan for Equity, Inclusion, and Diversity, data analysis will inform improvements to ongoing programmatic efforts. The UC Berkeley Multicultural Student Development Programs offer educational and multicultural activities to support the academic and personal success of students who belong to specific racial or ethnic groups and to promote multicultural understanding—all events are open to all students on campus. These programs recently received an infusion of funding to expand their services and programming and to create a Chancellor's Multicultural Advisory Board. Under the auspices of the Vice Chancellor for Equity & Inclusion are also a number of academic support programs designed to support low-income, minority, or women students with particular academic interests and career goals.

The Biology Scholars Program (BSP) is an example of the type of program that the Strategic Plan for Equity, Inclusion and Diversity seeks to promote. Since 1992, BSP has supported over 2,500 Berkeley undergraduates with study groups, advising, paid internships and research opportunities, and a community of students committed to service. Among BSP's current population of approximately 500 active students, 80% are first-generation and/or low-income, 70% are women, and 60% are under-represented minorities (URM) from California's rural and inner-city communities.

BSP's mission is to teach these future leaders from under-resourced communities, the practical problem-solving and self-advocacy skills that they will use to answer closed-ended (e.g., biochemistry problems) and open-ended (e.g., chronic inequity in health outcomes) questions. Using an integrated framework of academic support, individualized advising, professional seminars, community service, and research opportunities, students learn to translate what they are taught in class into actions that effect social change. As modeled by their academic, industry, and professional mentors, this program aims to produce leaders and innovators who will challenge the status quo.

BSP members are accepted after a rigorous application and interview process that screens candidates using two criteria: interest in a biology-related career and a demonstrated commitment to service. Neither high school GPA nor SAT scores are used as filters. Despite the fact that URM BSP freshmen on average have lower grade point averages (GPAs) and SATs than entering biology-majors-at-large, they graduate with a biology degree in the same percentages and with equivalent exit GPAs as non-BSP majority students. Thus, rather than "skimming" those most likely to succeed, BSP enlarges the pool of students that are competitively eligible for biology-related careers.

The BSP demonstrates the potential success of these actions. Since 2004, 96% of URM medical school applicants in BSP were admitted compared to 35% of URM applicants not in BSP. From

2005-2010, 58% of BSP students from disadvantaged backgrounds awarded biology degrees graduated with GPAs at or above 3.0 compared to 27% of non-BSP students from disadvantaged backgrounds. Sixty-two percent of URM students graduating with honors in the Biological Sciences are BSP students.

Additional examples of successful programs which support inclusion and academic success are the SAGE Scholars Program and the Professional Development Program (PDP). The Sage Scholars Program supports low-income high-achieving undergraduates who explore professional options through guided research, paid internships, workshops, and SAGE sponsored networks. The Program has a 100% retention rate and all of the SAGE Scholars find employment or are accepted to graduate school upon graduation.

The PDP brings students together from diverse backgrounds who share interests in mathematics, science, and engineering and the pursuit of academic excellence. PDP views students as scholars who can appreciate the difference between learning for the test and mastering a discipline. Faculty mentor students as they work together in collaborative teams, forming academic and social networks in support of one another. Two studies have been completed which show the effectiveness of the PDP. Evaluation of a Program to Help Minorities Succeed at College Math: UC Berkeley's Professional Development Program demonstrates that PDP boosts students' calculus grade even when one controls for students' academic preparation, ethnicity, gender and professor. Explaining Student Success in One PDP Calculus Section: A Progress Report demonstrates that graduate student instructors in the PDP Calculus sections increase the complexity of mathematics concepts as they converse with students in the classroom, leading to a deeper understanding of mathematics concepts among participants.

Academic Support Services [CFRs 2.5, 2.12, 2.13, 2.14]

Berkeley has long provided a comprehensive range of student support services, including financial aid, registration, advising, career counseling, computer labs, and library and information services, designed to meet the needs of our undergraduate and graduate students, considering both their backgrounds and the courses of study that they are following. Our deliberate policy of admitting students who show exceptional promise means that entering students, particularly at the undergraduate level, may have very disparate levels of preparation. Our increasing numbers of out-of-state and international students also bring a diversity of preparatory experiences. Recognizing this, we provide numerous programs to foster student academic success and create intellectual community for all demographics, including out-of-state and international, disadvantaged and non-traditional students. Our goal is for our students not just to survive, but to flourish academically. These support services have not always been as visible, accessible or coordinated as they might have been. In the last few years Berkeley has made a concerted effort to make it easier for students to access support services. Targeted student support services, as well as recent initiatives to improve academic advising generally, illustrate our commitment to student success.

The Student Learning Center (SLC) is the primary academic support service available to all students at UC Berkeley. It has served over 80,000 students since its founding in 1973. Currently, approximately 40% of the undergraduate student population takes advantage of its services. The SLC provides instruction and tutoring by professional staff instructors and by peer tutors who receive pedagogical training from professional staff. The SLC works closely with faculty to support students taking key foundational courses such as introductory calculus and

chemistry. Students are assisted in mastering specific academic skills, courses, and broader academic challenges, such as transitioning from high school or community college to the university or from general education courses to more demanding and specialized upper division coursework, such as writing a senior thesis. They are also assisted in acquiring general life skills such as working collaboratively and, for some, transitioning to being tutors and mentors themselves. Students are served in a variety of formats including study groups, topical workshops, by-appointment tutoring, drop-in tutoring, and individual tutoring. We have recently provided additional funding to the SLC to hire a specialist who is trained in working with multilingual students to address the needs of our growing international student population. The philosophy underpinning all of SLC services is to move students to self-sufficiency within the context of the University.

The SLC also offers targeted support services to improve retention such as the Summer Bridge Program. As a condition of admission for some new undergraduates, the program is a rigorous six-week academic residential program designed to aid in the transition from high school to UC Berkeley. Prior to beginning their first standard semester at Berkeley, Summer Bridge students enroll in two intensive academic courses that are accompanied by adjunct workshops and an advising seminar—all aimed at helping this diverse group of students to better understand faculty expectations and the university culture, to get a jump on fulfilling university and major requirements, to learn how to optimize campus resources, and to build a support network of faculty, staff and peers that extends throughout their time at Berkeley.

A support service targeted to students entering primarily at the upper-division level is the campus's Transfer, Re-entry, and Student Parent (TRSP) Center which provides resources to assist with both the transition and longer-term success of non-traditional students.[6] The only center of its kind in the entire University of California system, the TRSP Center offers (1) summer workshops for new students in the months leading up to their first semester at Berkeley; (2) courses for academic credit that are targeted to be applicable to each specific group served; (3) enrichment and leadership opportunities for continuing TRSP students who want to give back to the campus community through their service; and (4) one-on-one advising. For new students, there is an "Adult Learners in Higher Education" transition course for re-entry students (25 years old or older), as well as a course for traditional-age transfer students who are acclimating to the university, and a separate course for undergraduate students who have dependent children and are balancing academics with parenting. The TRSP Center also serves students who are military veterans through its Cal Veterans services, and former foster care youth through its Cal Independent Scholars Network. For continuing as well as new students, TRSP provides academic support and enrichment workshops on special topics that range from time management and preparing for final exams, to graduate school planning and life after Cal. All of these activities are aimed at promoting student success. Administered through the Division of Equity & Inclusion, each of the programs at TRSP serves some of the most diverse students on our campus. The TRSP program helps students learn how to navigate and thrive at Berkeley academically, creating a sense of community for students who might otherwise feel isolated or out of step with the larger population of Berkeley undergraduates.

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[6] In terms of practical support, the campus has received private philanthropy to become the first public university in the U.S. to offer both graduate and undergraduate student parents access to back-up child care at highly subsidized rates. As of this fall, registered students with dependent children will be eligible for up to 60 hours per academic year of in-home and/or center-based care by professional caregivers, with a very low hourly co-pay.

The Fall Program for Freshmen (FPF) was developed for the benefit of UC Berkeley freshmen admitted to the College of Letters & Science for the spring semester, who would prefer to begin their education in the fall semester. The program offers a fall semester curriculum of courses that students take through UC Berkeley Extension that fulfill UC Berkeley graduation requirements. The courses and instructors are approved by the UC Berkeley Academic Senate. Since 1983, FPF has prepared more than 10,000 students for success at Cal. FPF provides a small and supportive academic environment that is integrated with campus life. Classrooms are located just four blocks from the main campus. FPF students have access to many of the same health, housing and student services as other Cal students, which contributes to a seamless transition in the spring. Data compiled by the Office of Planning & Analysis demonstrates that FPF students do as well as, and in some cases slightly better than, fall entrants. The value of the program is clearly evident when outcomes are compared to spring entrants who do not attend FPF. FPF participants are about six percent more likely to graduate within six years than are spring entrants who do not participate in the FPF.

In addition, to the programs mentioned above that serve broad constituencies, the campus hosts many other programs that are targeted to the needs of specific sub-populations. An example of a program targeted to an academic affinity group is the Engineering Student Services (ESS). Launched in Fall 2009, the program is designed to support undergraduates following the demanding, prescriptive curricula in the College of Engineering, providing the highest quality services and programs to empower engineering students to be their best. ESS provides a variety of resources for 3,000 undergraduate engineering students including academic advising (both from professional staff advisers and peer advisers), leadership and professional development workshops and training, free tutoring, recruitment and retention activities, drop-in career counseling, student organization advising, and mental health counseling delivered in a satellite office of the University Health Services. An integral function of Engineering Student Services is to prepare a diverse pool of engineering graduates for the U.S. workforce. Engineering Achievement Advisers with extensive experience in programmatic support for under-represented students play a central role in the recruitment and retention of students historically under-represented nationwide in the field of engineering. The Center for Access to Engineering Excellence, opened in January 2013, provides free tutoring and academic support. In addition to the formal Engineering Student Services programs, the Bechtel Engineering Center has been refurbished to update the library, to provide rooms that students can reserve online for working on class projects, and also to create space for student groups to work. Through these upgrades, students have access to an infrastructure designed to allow them to get the most out of their classes.

Each semester, the ESS Director and staff survey the undergraduates who have utilized their services. In addition, they have established learning outcomes for some of their programs such as the Pre-Engineering Program (PREP) and their annual LeaderShape Institute, which is a six-day intensive leadership development program. They then conduct pre- and post-tests to measure the outcomes. Assessment of students' learning outcomes for PREP, for instance, indicates students' self-assessment of their ability to successfully navigate their first year at UC Berkeley increased by .5 to 2.2 points on a five-point scale in response to 20 questions. ESS also utilizes general satisfaction surveys. The assessment data is used by the director and staff to inform their work and the planning of future programs to meet the needs of their students. It provides a gauge as to whether they are meeting their established goals and outcomes and whether their students are obtaining the desired skills and information.

Additional Co-Curricular Activities

In addition to the many opportunities for civic engagement described in the earlier essay, students at Berkeley have the choice of participating in other types of co-curricular activities to further their academic and professional interests, allow for political expression and activism, develop leadership and/or artistic talents, and create community in a very large institutional setting.

Since 1887, the [Associated Students of the University of California](#) (ASUC) has been the representative governing body for all UC Berkeley students and is a non-profit organization that is fully independent of the campus administration. For the majority of its existence, the ASUC has been self-supported by commercial activities and recently has begun using student fees for some initiatives. The ASUC sponsors over 1,500 student-led [organizations](#), which range from academic and professional, the arts, student government, public service and advocacy. The ASUC leadership is elected at-large annually and may address any issue which it considers to be salient and relevant to students; its focus changes from year to year as its leadership changes. Student representatives on Academic Senate and campus administrative standing committees and task force initiatives are nominated by the ASUC and Graduate Assembly, respectively.

The [Graduate Assembly](#) (GA) is a sub-section of the ASUC and the representative body of the graduate and professional students at UC Berkeley. Each department or professional school is entitled to a number of representatives to the GA, determined by enrollment size. The GA's mission is to improve the lives of Berkeley graduate students and to foster a vibrant, inclusive graduate student community. The fundamental principles of the GA are the promotion of an active student social life, inclusiveness, progressive activism, community service, educational improvement, and professional development. In serving these principles, the GA advocates for students, funds student groups on campus, and directly manages a variety of projects.

The ASUC Auxiliary is a department within the [Division of Student Affairs](#) that, since its establishment in 1998, has overseen the day-to-day operations of the ASUC's commercial activities, programs, facilities and operations. With direction and oversight from the Commercial and Student Services Board (CSSB), the ASUC Auxiliary derives income from student fees, retail operations, vending, food service, and a variety of self-operated units, such as the Art Studio and Event Services. Additionally, the ASUC Auxiliary provides student group advising services, leadership opportunities, and student development programs through its LEAD Center. It also manages and operates multiple facilities including the University Student Union, Eshleman (just torn down as part of the Lower Sproul Redevelopment discussed below) and Anthony Hall (all of which house the ASUC student government), the Graduate Assembly, the Multicultural Center, Public Service Center, student organization offices, and much more. Finally, the ASUC Auxiliary provides financial and accounting services to approximately 25 ASUC Government Officers, Graduate Assembly Executive Officers, and more than 1,300 student groups and 40 student publications.

In April 2010, the ASUC passed the B.E.A.R.S. (Bring Energy and Revitalization to Sproul) Referendum, which raised funds to improve lower Sproul Plaza and its environs. The [Lower Sproul Redevelopment program](#) is an investment in students' co-curricular life and is designed to revitalize the Lower Sproul Plaza as a "campus living room," where students can engage in social, academic, and recreational activities at all hours of the day and night. The redevelopment project will also rebuild and remodel surrounding buildings and spaces which house student

academic support centers, student co-curricular activities, and the student store and eateries. The redevelopment project is an unprecedented partnership between the campus and the students. The planning committee, the Lower Sproul Working Group and Programming Committee, is composed of student and campus administrative representatives and provides oversight of the project which is scheduled to open in Fall of 2015. The project's cost of $223M is shared between the campus ($99M) and student fees ($124M).

Cal Performances, which defines the western edge of lower Sproul Plaza and will retain its current location, is UC Berkeley's performing arts presenter and producer, the largest multi-disciplinary presenter in Northern California, and one of the largest university-based arts centers in the U.S. Its commitment to students includes opportunities for arts programming for campus courses, for students' exposure to artists and artistic groups in-residence, and for student musical activities.

UC Berkeley students also participate in athletics at a variety of levels. Some students take physical education courses and utilize the recreational sports facilities situated in various venues around campus. Some students participate at a more competitive level as members of the university's club and varsity sports teams. Berkeley's reputation for comprehensive excellence includes its historical record of producing national champions and Olympians. The campus community supports these athletic accomplishments and accolades.

The campus offers physical education instructional classes in fitness, dance, martial arts, aquatics and sports. The physical activity offerings are designed to enable participants to develop and improve performance skills, gain knowledge and concepts relevant to the activity, receive relevant information concerning the health benefits of regular exercise, and attain an appropriate level of fitness. All activity classes are for credit and are open to women and men.

The Recreational Sports Facility (RSF) is the University's largest, most complete fitness center with over 100,000 square feet of activity space, including an Olympic-sized swimming pool, three weight rooms, seven basketball courts, seven racquetball/handball courts, six squash courts, treadmills, elliptical trainers, stairmasters, rowing machines and stationary bikes. Additionally, there is space reserved for volleyball, badminton, group exercise classes, martial arts, and table tennis.

The RSF serves the entire campus community, as evidenced by the WorkFIT program and the Fitness For All project. WorkFIT is an in-house fitness program for departments on campus, enhancing the fitness needs of staff and faculty. Certified fitness instructors visit departments and lead regular fitness classes at a time convenient for staff. Fitness for All is a collaborative project to support and advance the burgeoning interest and commitment on campus to create sports and recreation programs for the 8000-plus members of the Cal community with disabilities.

The Cal Sport Club program, managed by UC Berkeley's Department of Recreational Sports, offers students competition, instruction and recreation in 33 sports. The program serves as a competitive alternative to intramural sports, physical education and intercollegiate athletics by offering team members professional coaching, league travel and participation in national tournaments. Currently, over 1,700 members of the campus community participate in the program.

UC Berkeley is recognized as one of the premiere intercollegiate athletic programs nationwide, ranked in the top ten of the Directors' Cup for six of the past seven years. Since its first national

championship in football in 1920, Cal has claimed 85 national team titles in 15 different sports and has 264 individual (163), crew (48), swimming relay (36), tennis doubles (14) and track relay (3) national champions.

UC Berkeley has also excelled in international competition. Over its history, Cal athletes have captured 178 total medals — 99 gold, 46 silver and 33 bronze — including a school-record 17 medals in both Beijing (2008) and London (2012). With 45 participants at the most recent London Olympic Games, UC Berkeley sent more student-athletes, coaches, alumni and other members of the campus community to the games than any other public school in the nation. The Cal contingent featured athletes and coaches in ten different sports — men's basketball, men's and women's rowing, men's and women's swimming, men's and women's track and field, men's and women's water polo and women's soccer. "The Olympic Games is a prestigious international venue for Cal to continue to showcase the world-class excellence of our Golden Bears and the campus," said Sandy Barbour, UC Berkeley's Director of Athletics.

Improving Advising [CFRs 2.11, 2.12, 2.13, 3.4, 4.6]

Advising is a strategic campus priority that supports retention and timely graduation and the overall student experience. For a university as large and complex as Berkeley, advising maximizes students' ability to take advantage successfully of the range of services and opportunities available to them. As part of the Operational Excellence (OE) Student Services Initiative, the campus has embarked on both a major refresh of our Student Information System, as well as the creation of a coordinated governance body to oversee and align critical, distributed advising services.

One milestone accomplishment under the OE Student Services Initiative is the opening of Cal Student Central, a coordinated "one-stop shop" for most student-facing services provided by the Office of the Registrar, Financial Aid and Scholarships, and Student Billing. For the first time in UC Berkeley's history, a team of cross-trained professional advisors are available in one location to facilitate a student's transactional needs related to financing their education and supporting their registration. The campus is utilizing customer relationship management software that creates an electronic case file for each student. This allows for advisors to access and consider a student's history each time they contact the center for service. The center opened in January 2013 and startup funds were provided by Operational Excellence; the ongoing operational budget is provided by the partner offices.

Recognizing that we can no longer serve students and staff on aging systems that are built on a byzantine structure of outdated technology, the campus has made a commitment to replace the main systems which support student academic functions. Led by the campus Chief Information Officer, in collaboration with the Vice Chancellor for Student Affairs (VCSA) and the Vice Provost for Teaching, Learning, Academic Planning & Facilities (VPTLAPF), a team will develop a request for proposals during the Fall of 2013, with the expectation that implementation will begin in Summer 2014. Some service functions will be wholly re-imagined; others will be improved on the margins. Areas considered to be in scope will include: undergraduate admissions, records, registration, student billing, and student advising support.

Launched under the OE Student Services Initiative, the Advising Council is an unprecedented effort to coordinate and align UC Berkeley's student advising by staff advisors at the undergraduate and graduate levels, across both curricular and co-curricular programs. The

Council, chaired by the VPTLAPF and composed of a representative group of advisors, faculty, administrators and students, is developing shared policies, training, and practices to coordinate efforts and raise the standard of advising excellence on campus. Slated to complete its initial mandate over two years (concluding Spring 2014), the Advising Council is a partnership between Berkeley advisors, faculty, and students that will provide staff with a sense of a professional community and a clear sense of purpose, complimentary to that of faculty advisors. Subject matter experts are working in the three following areas: to establish a shared vision for student advising on campus; to create common program assessment standards for units and to develop a protocol for assessing all advising units across campus on a regular schedule; to develop and coordinate orientation, continuing education and skill development programs for new and current advisors and create common performance standards for advisors. Following the completion of the project phase in Spring 2014, the Advising Council will transition to operations and will be an ongoing governance body, overseen by the VPTLAPF. Deliverables generated during the project phase will be regularized and institutionalized in existing campus units such as Learning + Organizational Development and the Center for Teaching and Learning.

One deliverable that has already been completed is the Guide to Program Effectiveness. In an effort to generate an assessment and program resource guide for the campus advising community, the Advising Council working group on program effectiveness engaged in an iterative three-step process: (1) understand the context and current practices of advising evaluation and assessment; (2) develop program standards and assessment tools; and (3) improve the resources on assessment and standards by soliciting continuous feedback. The group first engaged in understanding the landscape of advising by mapping all advising on the Berkeley campus. The group also reviewed the professional standards of the Council for the Advancement of Standards (CAS) in Higher Education, the National Academic Advising Association (NACADA), as well as peer institutions' advising and assessment practices (e.g., Penn State University, UC San Diego). The next stage of information gathering involved conducting interviews with 15 advising units across campus. The interview study aimed to gain a general understanding of the motivations, practices, and concerns regarding evaluation and assessment and to gather examples of best practices, tools, and strategies. These interviews were recorded and transcribed to allow for detailed analysis. The output of the interviews shaped the group's assessment resource materials and recommendations for campus roll-out. Work on advising program effectiveness will continue in 2013-14 in conjunction with the newly launched Advising Council Fellows Program co-sponsored by the Advising Council and the Center for Teaching and Learning.

The VPTLAPF and Vice Chancellor for Equity & Inclusion offices also provide support to the Advising Network Community (ANC). The ANC is a grass-roots community of practice and a registered staff organization founded in 2010. It is made up of nine members from units across campus serving both undergraduates and graduates. Members serve as liaisons for clusters of advisors grouped by functional responsibility, rather than reporting structure, and provide a venue for communication among advising staff and between advising staff and the administration. The ANC meets monthly and provides professional development and engagement opportunities for curricular and co-curricular advisors through seminars and a newsletter. The ANC chair will also serve on the Advising Council to ensure that the efforts of both groups are well-articulated.

Support for Graduate Students [CFRs 2.5, 2.13]

As WASC has recognized, measuring graduate student educational success is a far more complex exercise than measuring undergraduate learning and cannot be conveyed in quite the same metrics used in assessing undergraduates. Nevertheless, graduate education is a central and highly successful dimension of our mission and of our overall institutional preeminence and we wish to include a brief discussion of it here. Berkeley has administered the Ph.D. Exit Survey for 25 years, tracking first placement of our alumni. In 1995, Berkeley also conducted one of the first long-term studies of doctoral career attainment, the Ph.D.s-Ten Years Later study. The study surveyed nearly 6,000 Ph.D.s who completed their graduate education between 1983 and 1985 from 61 doctorate-granting institutions across the United States.

Each graduate academic and professional program conducts its own admissions process, recommending only the most competitive applicants to the Graduate Division. Most doctoral programs are careful to admit doctoral students whose research interests match those of their faculty and who can be fully supported during their studies at Berkeley. The Graduate Division then checks that every applicant who has been recommended for admission meets University standards and verifies credentials and test scores provided by applicants. The process is very competitive, resulting in a low 12% admit-rate for doctoral applicants and a 19% admit-rate for master's applicants in 2012-13.

In 2011-12, the campus—coordinated by the Graduate Division—disbursed approximately $286M in financial support to approximately 10,000 graduate and professional students, including the coordination of academic employment for 5,600 students. The Graduate Division runs an annual campus-wide competition to award four prestigious fellowships: the Berkeley, Regents', Chancellor's and Cota Robles. Faculty committees are chosen to evaluate graduate applicants who are nominated in fields close to their discipline. When combined with departmental guarantees of support, each fellowship is equivalent to the support needed to complete doctoral study. Other fellowships awarded by the Graduate Division are designed to facilitate timely degree completion, such as the Dissertation Completion Fellowship and the UC Dissertation Fellowship.

Another large component of graduate student financial support is delegated to academic programs. Each year the Graduate Division allocates funds to each program from tuition money reserved for student aid, gifts and endowment income. Reserved for graduate student support, these funds are used to "fill in the gaps" for graduate students who do not receive campus-wide fellowships or who are not employed as graduate student instructors or researchers. These funds are especially useful for supporting graduate students who are at risk of stopping out for lack of funds.

Most recently there has been an increased emphasis on graduate fellowship fundraising on campus. As of June 30, 2013, the Campaign for Berkeley has raised over $240M for fellowships, prizes and awards for graduate students. This is well over five times the amount raised in previous campaigns. Most of the money came in as endowment and bodes well for the campus's future capacity to support graduate students.

Berkeley doctoral students are also very successful at securing research grants while at Berkeley and research jobs after they graduate. Over the past decade (2004-2013), the National Science Foundation (NSF) awarded more Graduate Research Fellowships to UC Berkeley students than

to those of any other university (MIT was 2nd; Stanford 3rd; Harvard 4th). In a 2012 survey of doctoral alumni, 55% of Berkeley graduates found careers in four-year colleges, medical schools and university-affiliated research institutes compared with 41% surveyed by NSF in the Survey of Doctoral Recipients in comparable fields and cohorts.

In addition to the career attainment information collected in the 2012 doctoral alumni survey, we also collected information on academic prizes and honors such as National Academy memberships. Also important to Berkeley's values, we collected information on awards and recognition for community service that our alumni have received. These data are still in the process of being coded, but we believe that the results will show that a large portion of our doctoral alumni have been recognized for significant contributions to their fields and to their communities.

Achievements by our doctoral alumni after they graduate from Berkeley are only one way of measuring success. The Graduate Division measures graduate student success in meeting academic goals while they are students at Berkeley. Updated annually, reports summarizing time-to-degree, completion rate, doctoral advancement rate, and a host of student milestone measures are provided to each academic program. In addition to being used in the periodic academic program review process, these reports are used in programs' self-improvement efforts. Some examples of how these data are used appeared in earlier portions of the essay.

Despite this success, Berkeley is determined to improve the preparation of doctoral students for academic and non-academic research careers. For eleven years the Graduate Division has conducted the [Summer Institute for Preparing Future Faculty](). Intended for graduate students nearing completion of their degree programs, the aim of the Summer Institute is to enable graduate students to excel in all aspects of academic life as they transition from graduate school to future academic careers. With the growing interest shown by doctoral students in non-academic careers, this year a group of Berkeley students held a new conference – [Beyond Academia](), hosted by the Career Center. The conference invited non-academic industry professionals who hold Ph.D.s to speak about the transition away from academe.

Financial Sustainability: Strategic Responses to a Changing Environment

UC Berkeley's ability to sustain its financial viability, its accessibility and its academic excellence is amply demonstrated by its response to the recent financial downturn. Since the previous accreditation review, there has been a significant shift in the composition of Berkeley's major revenue sources. Since 2003, state appropriations (that is, revenue provided by the State of California to cover Berkeley's general operational expenses) have been cut by 50% in nominal terms, or about 70% in real dollars. As a consequence, state appropriations have fallen from being the primary source of revenue for Berkeley to the least important in dollar terms, by a wide margin. State appropriations now account for about 12% of total revenue (down from over 50%).

Berkeley's active response to this challenge was to professionalize its financial administration and to make selectively targeted investments in its financial and administrative management and in its academic programs. We have successfully increased non-state sources of revenue (namely government contract and grants, philanthropy, and tuition/fees) at a faster pace than the cuts in state funding, enabling Berkeley to continue to thrive and expand. We are also pursuing five areas where we believe we can generate significant financial growth. These include: The development of an online strategy, actively supporting unit-level entrepreneurialism, increasing our investment in fundraising activities, finding opportunities to leverage research and discovery, and exploring opportunities for the new Richmond Bay Campus.

This essay will describe how Berkeley is adapting to the trends and challenges we see taking place in higher education and our efforts to remain financially sustainable into the future.

Trends and Challenges

Berkeley is experiencing several trends that demand our attention: globalization of higher education, the increasing use of new technologies in teaching and learning, an increasingly diverse student population, and an increasingly competitive and interdisciplinary research environment. In addition, we are facing ongoing challenges that we must continue to address: hiring, retaining, and supporting the work of a world-class faculty, reduced funding from the state, and the need to develop a more flexible and robust financial model to support our mission of unsurpassed excellence in teaching, research and service.

Berkeley aspires to fuel a perpetual renaissance, generating unparalleled intellectual, economic and social value. With the drive to ask critical questions and embrace new challenges, we are redefining ourselves and the role of a university in a changing world. Our sustainability depends on our ability to demonstrate our value to society, and implementing new efficiencies that support the Access and Excellence pillars of our teaching, research and public service mission.

Capitalizing on Globalization [CFR 1.5]

Globalization—the increased interaction and exchange of people, goods, and ideas across the globe—has affected not only our economy and our culture, but is also reshaping opportunities and challenges for higher education. Clearly, the world today is more competitive for institutions of higher education which vie for the same grant and philanthropic dollars, the best students, and

the highest-performing faculty and staff. As more nations strengthen their economies with strategies that build their university capacity and influence, international competition is expected to grow.

The University of California system emphasizes education of California residents at the undergraduate level. Berkeley's enrollment planning includes bringing our in-state student levels closer to our historic state-funded levels, while at the same time, we have been increasing both international and out-of-state undergraduate admissions. We believe that exposure to the greater diversity of our student population broadens student perspectives and experiences and is a key way in which our students will become sophisticated and effective global citizens. International students constitute a growing percentage of total student enrollments. International students are around 10% of our 2012-13 undergraduate population, and data compiled by the Council of Graduate Schools suggest that Berkeley is currently attracting two to three percent of all international student applications to U.S. universities. International students are also attracted to Berkeley's Summer Sessions program. Over 3,000 overseas students attend courses, ranging from English language to American Cyberculture, during the summer.

At the graduate level, UC Berkeley continues to attract excellent students from across the globe. International students comprised approximately 24% (719 of 2,987 of the 2012-2013 entering cohort). Large numbers of visiting Student Researchers and Visiting Scholars, international graduate students and faculty working on short-term independent research, also contribute to the global diversity of Berkeley's classrooms and research facilities. To facilitate Berkeley graduate students' study abroad, Berkeley has instituted in absentia registration for research or coursework that is directly related to the student's degree program and must be completed outside of California for at least one full academic term.

In 2012, UC Berkeley was invited as one of six U.S. universities to participate in The MasterCard Foundation Scholars Program which will provide holistic support—financial, academic, social, and career counseling—to 113 students from sub-Saharan Africa to attend Berkeley between 2012 and 2020. The scholars will pursue both undergraduate and professional master's degrees. Students are selected for their talent and promise and their commitment to give back to their communities, despite their financial disadvantage. The goal of the program is to develop young African leaders to access educational opportunities as a lever for economic and social growth and change.

Berkeley has a strong presence internationally and we are developing new international relationships on an ongoing basis. We continue to see U.S. universities build and operate satellite campuses in other nations, yet the profitability and success of these ventures remains unclear. Berkeley's response to globalization is both more flexible and multifaceted and less resource-intensive. While there is room for significantly greater internationalization, in many ways UC Berkeley is already a globalized university. A new report by our International Strategy Task Force stated that 90% of the 800 Berkeley faculty respondents to a survey indicate that they are currently engaged in some form of international research collaboration, and Berkeley has over 100 bilateral exchange agreements and memoranda of understanding with universities abroad. The Task Force named 12 recommendations that support collaborative engagement and two-way learning, the net effect of which is a substantial enhancement of the university's international strategy with a moderate investment of additional resources.

In light of these recommendations, the Global Engagement Office (GEO) was established in December 2012 to facilitate coordination among Berkeley's many international ventures and

foster coherence among them. GEO is working with campus units and administrative offices to coordinate efforts at global engagement, identifying possible legal, financial and reputational risks, and creating guidelines for the development of new international initiatives. UC Berkeley faculty will continue to guide campus globalization in new and exciting ways through their research collaborations and departmental programs. With a centralized office providing guidance and support to faculty and campus units, UC Berkeley can avoid the duplication of efforts, waste of resources and potential risks associate with multifaceted globalization.

Opportunities for Berkeley students to engage in issues and to solve problems in communities in other countries abound. For example, the UC Berkeley Chapter of Engineers Without Borders is working with two Peruvian communities to provide expertise ensuring access to safe drinking water. Another student team is working with the Tibetan Village Project to provide rural communities with cost-effective, easy-to-maintain, home-based water storage and purification systems.

Berkeley's engagement with international issues is highly visible in our curricula. We have long been one of the leading universities world-wide in foreign language education and are committed to maintaining this contribution to higher education. We have expanded the number of foreign language courses offered through our Common-Good Curriculum initiative and many additional courses in the humanities, social sciences, and professional schools address international issues and expose students to a variety of perspectives. For example, our Global Poverty and Practice Minor, established in 2007, has grown to be the largest minor at Berkeley.

We are exploring a significant increase in our Education Abroad Program, as we also take steps to support access to required courses and undergraduate time-to-degree. Students participate in study abroad opportunities offered by other institutions as well. As of this Fall, the campus has initiated a new status, Planned Leave of Absence, for undergraduate students who study abroad independently, i.e., in a non-UC study abroad program, to facilitate their transition as UC Berkeley-registered students. In 2013, over 600 students participated in summer study and internship programs. The growth of summer programs and international internship opportunities for undergraduate students allows students to gain academic credit or work experience in a global context without sacrificing time on campus. The campus's commitment to these opportunities is demonstrated by the creation of a $1,500 need-based scholarship for Berkeley students to make summertime overseas study more affordable. The campus is close to achieving the goal of tripling the number of Berkeley students studying abroad; summer options will continue to grow in the coming years as demand increases.

Private philanthropy has also been raised in support of targeted study abroad opportunities. The Huang Scholars Program (video) provides Berkeley students with the opportunity for intensive Chinese language instruction on campus as well as language instruction and internships in China. There is no restriction as to the major field of study students are pursuing. Each winter, approximately ten scholars are selected for the two-year program, based on their commitment to studying Chinese and their vision for the role that China and Chinese will play in their future. Students enroll in an eight-week intensive language course in Beijing and continue their language study once they return to Berkeley. The following summer they are awarded internships in China in fields related to their interests. Students' travel and living expenses are covered by the program.

**Incorporating New Technologies into Teaching, Learning and Administration
[CFR 2.8, 3.4, 3.6, 3.7, 4.2, 4.4, 4.5]**

Advances in technology continue to drive change in universities throughout the world, impacting teaching, learning, research, service, library collections, administration, communications and the student experience. Berkeley has been actively involved in examining and utilizing the best new technologies in every aspect of our activities, with students, faculty and staff all actively participating in the efforts. Among research universities, Berkeley is already a thought-leader in the field of technology-enabled and online education.

In 2001, Berkeley established its first integrated academic technology support unit, [Educational Technology Services](#) (ETS), headed by the Associate Chief Information Officer for Academic Engagement. This unit is actively engaged in researching, developing and delivering appropriate technology to enable and enhance the teaching and learning activities on the campus. Along with the standard services including classroom support, Learning Management System (LMS) support, and course capture, it offers regular workshops and training on incorporating technology into courses to enhance teaching and learning. An example is the very popular Social and New Media Seminar Series aimed at encouraging faculty to experiment with the incorporation of these technologies into their teaching. This series was so successful that ETS has been asked to tailor it to specific departments so that faculty cohorts can attend together and build a community of practice that extends beyond the sessions.

Both ETS and the recently inaugurated (September 2012), [Berkeley Resource Center for Online Education](#) (BRCOE), discussed in detail below, help to foster a culture of innovation in utilizing technology in support of instruction and pedagogy. Access to these resources has led to educational changes at the scale of individual courses and faculty, as well as for entire degree programs. Through the development of technology-enabled classrooms, ETS facilitates interactive lectures that create a more intimate environment than is typically possible in large lectures and increase students' engagement with learning. The instructional designers in ETS also work closely with faculty to enhance the student experience in large-scale courses. For example, they have been working closely with the Chemistry 1A faculty to integrate technology into the course to enable greater student interaction with faculty.

To mark its commitment to meaningful innovation in teaching and learning in general and in online education in particular, Berkeley has formed the BRCOE whose primary purpose and objectives are
- to inform, advise, and consult University on strategic directions for online education;

- to assist with interpreting state and system-wide proposals and laws related to online education; advise on University's position vis-à-vis those proposals;

- to develop, introduce, and fund online education initiatives that align with university mission and strategic direction for online education;

- to articulate and communicate to the internal and external public on the University's strategy, position, and online education initiatives;

- to develop and maintain critical internal and external partnerships;

- to inform, advise, educate faculty and other internal constituencies on latest technological, pedagogical, research, and business models related to online education and best practices in the field;

- to develop and coordinate resources to support campus-wide online education initiatives and projects; and

- to assess, consult, and facilitate individual online education projects for faculty and academic departments.

To support its purpose and mission, BRCOE has developed three main functional areas:
- Production: Development and production of online courses, including Massive Open Online Classes (MOOCs), and online and hybrid certificate and degree programs.

- Management and Administration: Project management, cross-functional coordination, and LMS management and support

- Research and Development: this side of BRCOE focuses on online education projects that have clear research objectives.

BRCOE is currently holding a series of workshops to demonstrate to faculty how technologies that have been developed for online courses can improve pedagogy for on-campus students. For example, large-scale online courses (i.e., MOOCs) rely on automated evaluation of assignments so that students can receive feedback on their work without requiring manual grading and scoring. This technology is not limited in application to these large online courses, and has been demonstrated to improve the learning experience for on-campus students. In a computer science course, a faculty member incorporated automated assessment for programming projects and found that the instant feedback this technology provided greatly improved student learning. Instead of waiting a week for feedback on their assignments, which is usually long enough for them to forget some of what they did on the assignment, students receive immediate feedback and even have the opportunity to rework portions of the assignment as their understanding improves. By incorporating the feedback into the period when the students are doing the assignment, they are able to correct their thinking about a topic immediately and develop a clearer understanding of the material. It also improved final design projects as GSIs could devote their time to consulting with students.

One of the latest projects initiated by the Center is MOOCLab. MOOCLab is a three-year initiative to identify, fund, develop, and offer MOOCs designed and taught by Berkeley faculty, such that each course not only fulfills an important instructional goal, but also addresses one or more research questions regarding the effectiveness of technology-enhanced teaching and learning. One of the MOOCLab project's goals is to ensure that the courses represent diversity of subject areas and academic disciplines and to encourage intra- and inter-disciplinary scholarly collaboration. The principal partners in the MOOCLab project include the BRCOE, the Graduate School of Education, and the College of Engineering.

In 2011-2012, UC Berkeley enrolled more than 2,000 students in online courses for academic credit, more than 7,500 students in online courses for professional credit, and more than 75,000 students in free noncredit MOOCs through our partnership in the [EdX enterprise](). In addition, since 2001, ETS's webcast.berkeley.edu has provided the world with a window into the UC Berkeley classroom and campus events experienced via online video and audio. From UC Berkeley students to life-long learners around the globe, millions of viewers have tuned in to view the over 20,000 hours of content made available through the [webcast.berkeley.edu]() program. Berkeley's engagement in online education is thoughtfully aligned with its mission of a public research university. Berkeley's focus on research and scholarly collaboration, and its commitment to excellence in teaching shape Berkeley's strategy in online education. While online courses and MOOCs are topics of hot debate in the field, Berkeley will continue

methodically to test a variety of new educational approaches that incorporate the use of new technologies; we will also monitor, analyze and discuss the implications of technology-enabled education as our peers experiment with it. Our objective is to encourage and support systematic pedagogical and technological research in online education and to use new technologies to enhance teaching and learning and to expand access, developing new approaches and adopting best practices developed by others.

We are well aware that there are numerous issues in online education that must be resolved, ranging from intellectual property issues concerning the ownership of course materials to the granting of credits for courses not taken at UC. We are examining these issues in detail and will propose a policy framework and implementation strategy facilitated with support from the Berkeley Resource Center for Online Education as we continue to evaluate opportunities in this area. Faculty will be intimately involved in formulating online education research objectives and in online course and program development, as well as in the review and evaluation protocols established by the Academic Senate. Berkeley faculty also participate in the campus-wide Faculty Advisory Committee on Online Education and in the online education consortium (soon to transition into a campus-wide online education forum). More and more departmental and interest-specific fora and committees are being formed throughout the campus to discuss specifically online education and Berkeley's place in this new and evolving space.

New technologies are allowing us to extend our research and service activities as well as our teaching. International collaborations now extend around the world, enabled by air travel but supported on an ongoing basis by information technologies that allow low-cost communication and exchange of information. Examples documented in the International Strategy Task Force Report include the Institute of International Studies collaboration with several Indian institutions to train future generations of academics in the social sciences, collaborations with King Abdullah University of Science and Technology (KAUST) in Saudi Arabia, the National University of Singapore (NUS), the National Taiwan University (NTU), and Nanyang Technological University, and the College of Engineering's partnerships with Shanghai Tech and Shanghai Zhangjiang High-tech Park. Examples of more recent research projects include the development of a virtual Berkeley-Tsinghua Center that will facilitate joint research projects; a new program with the Chilean government to fund research projects and student activities; and a membership in the SESAME: Synchotron-Light for Experimental Science Applications in the Middle East project. In addition to these larger projects, the university continues to foster general international partnerships, based on mutual academic and scientific interests, with universities around the world. Examples include Vietnam National University in Ho Chih Minh City (emphasis on chemistry), University of Sao Paulo (emphasis on engineering), Shanghai University (emphasis on film studies), University of Leuven (emphasis on Dutch Studies) and Universidad de Antioquia (emphasis on agro-ecology).

Finally, new technology has rapidly reshaped our administrative units. The university's data management systems have been entirely revamped to make institutional data accessible, reliable, consistent and secure. Expansion of the Institutional Data Management and Governance (IDMG) Initiative began in 2007 with projects designed to enable financial managers to track all funds, including those that are restricted to particular uses or departments. Other key projects have developed robust methods to better document, track and budget for capital projects. Of great importance for academic departments and overall academic decision-making is the series of projects designed to gather and report consistent information on institutional data, including departmental budgets, FTE, students enrolled, graduation rates, and other key performance metrics. Berkeley has made this data easily accessible through Cal Answers (our campus

enterprise data warehouse tool) to empower the campus community to transform data into decision support. As these new support systems are put into place, strategic planning will become more flexible, with technology better supporting evaluation and decision-making, allowing us to better respond to change.

Meeting the Needs of a Changing Student Population [CFRs 2.12, 2.13]

As noted in the previous essay, Berkeley is committed to providing access to a student body that reflects the increasingly diverse California and U.S. population. We have about the same number of Pell grant recipients as the entire Ivy League. Many of our students are the first in their families to go to college. Some are undocumented. Some are former foster youth. Berkeley also has a long tradition of making our campus welcoming to students with disabilities, as well as to veterans, students with children, and older, re-entry students. Graduate enrollments have always included many international students and students from other states. In the last decade the campus has also increased the share of international and out-of-state students in the undergraduate student body, with the understanding that broader exposure to difference will help build global leadership capabilities.

The result is that our student population is increasingly diverse across multiple types of difference. As a consequence, our approaches to teaching, learning, and student services also must be more flexible and responsive than ever before. We have identified a need to coordinate our efforts to assist students in a variety of aspects of their experience, from their transition to campus as new entrants to their health and well-being in a competitive and sometimes stressful environment, to their job hunts, grad school applications and beyond. A recent study of the first year at Berkeley identified student concerns, including poor study habits, feelings of stress, and worries about paid employment and family responsibilities that competed for their time (Office of Planning & Analysis's *Fall 2011 Profile and Early Experiences of New Berkeley Undergraduates*). The Berkeley International Office, the Division of Student Affairs, staff within the Schools and Colleges, and the Tang Health Center, as well as other administrative units share responsibility for enhancing the student experience and ensuring that acculturation issues are not obstacles in their successfully completing their degrees. The recently launched, International Student Success Working Group, Advising Council, and the Student Service One-Stop Shop are examples of projects designed to improve the student experience by better coordinating services for them.

In improving student services, we are also mindful that in 2010 student tuition revenue surpassed the state's contribution to the university's operating budget for the first time in UC's history. Assuring that students and their families get top value for money is a major objective driving our efforts to improve efficiencies as well as to continue to offer excellence in our research and education. Access is linked with Berkeley's pledge to ensure affordability through an array of financial assistance, most recently augmented with a program for middle-class families, the Middle Class Access Plan, which was the first of its kind among public universities. Our commitment to be accountable to our undergraduate students is further demonstrated in the College Scorecard produced by the College Affordability and Transparency Center, available through www.whitehouse.gov. It highlights Berkeley's comparatively high graduation rates, relatively low loan default rates, and an average indebtedness well below the state and national average.

Competing Successfully in the Changing Research Environment [CFRs 2.5, 2.8, 4.2]

Berkeley's international reputation is highly associated with research and graduate study. Recent growth has taken place in graduate professional degrees and self-supporting programs that are in high demand, responding to market needs and generating income for their departmental sponsors. However, the majority of Berkeley's graduate programs are dependent on internal and extramural funding. Students are supported in part with UC funds such as graduate student instructor (GSI) appointments and block grants from Graduate Division, along with external fellowships and stipends from extramural research funding secured by individual faculty members.

Thus research programs, which are led by faculty who compete for funding and carry out projects as individual Principal Investigators and as part of faculty research teams, are central to Berkeley's academic enterprise. They are the training ground for graduate students and a source of inspiration for teaching at all levels, from freshman seminars to Ph.D. tutorials. Because research and teaching are so intertwined, the health of our teaching programs depends on our research, and vice versa. Maintaining a healthy research environment requires careful enrollment planning, investment in physical facilities and research services, as well as an entrepreneurial faculty.

One of the most dramatic trends in higher education in recent decades, one that continues to shape the educational experience and drive new research initiatives on our campus, is the increasingly interdisciplinary nature of academic inquiry. Berkeley has been on the forefront of this change. The campus and the faculty partner in developing collaborative research communities that offer support for faculty and student research. We have established new programs and centers to pursue emerging topics ranging from nanotechnology to new media to the rapid growth of metropolitan areas around the globe. We have invested in faculty positions, graduate and undergraduate programs, and new research centers to explore these emerging topics. As far back as 1987, UC Berkeley established the interdisciplinary Townsend Center for the Humanities. A more recent example of this is the creation of the Institute for Integrative Social Science and its partner, D-Lab. Through a combination of university funds and philanthropic efforts, these two new entities support innovation in social science research, and serve both faculty and students at all levels.

Collaboration extends to the capacity of the campus to leverage the talents of its faculty and students in competing successfully for major institutional grants that push the boundaries of knowledge: two notable examples are the Energy Biosciences Institute (EBI), a collaboration with the Lawrence Berkeley National Laboratory and the University of Illinois that resulted in a ten-year $500M grant to the university for advancing research and knowledge in developing bio-fuels. Another competitive achievement was the award by the Simons Foundation, a $60M grant over ten years, to create the Simons Institute for the Theory of Computing. Earlier in the decade, the campus successfully competed for two of the California Institutes for Science and Society awards with the Center for Information Technology Research in the Interest of Society (CITRIS), and the California Institute for Quantitative Biosciences (QB3). Both of these are collaborations with other UC campuses.

As part of Berkeley's 2002 Strategic Academic Plan, the University identified areas of exceptional promise for new investment. Through a competitive process, the campus established the New Initiative Centers (NICs), listed below, and the Haas Institute for a Fair and Inclusive Society (HIFIS) to promote cutting-edge research, scholarship and curriculum and to consolidate

research in emerging academic fields, operating outside of traditional academic departments. In addition, the campus established the Blum Center for Developing Economies to promote the study of the impacts of poverty and the promise of economic development throughout the world. The creation of these academic units was inspired by the realization that many innovations in higher education teaching and research would need to be moved forward through multidisciplinary approaches as opposed to the traditional department models.

Given the need to innovate, Berkeley established the NICs through an internal competitive process. These units involved more than one department on campus. Each of the NICs has evolved into an active, robust and dynamic unit that has contributed greatly to interdisciplinary research and teaching on the campus. The NICs, under the oversight of the Vice Provost for Teaching, Learning, Academic Planning and Facilities (VPTLAPF), are comprised of the Berkeley Nanosciences and Nanoengineering Institute (BNNI), Berkeley Center for New Media (BCNM), the Center for Computational Biology and the Center for Global Metropolitan Studies. All NICs have a critical mass of faculty, and programs continue to develop, with a combined total of 14 core faculty members providing teaching and research services to the campus. BNNI serves as the umbrella organization for expanding and coordinating Berkeley research and educational activities in nanoscale science and engineering. The Institute serves as a catalyst for greater interdisciplinary collaboration between Berkeley faculty and students in disciplines such as physics, chemistry, biology and engineering. The Center for Global Metropolitan Studies supports doctoral students and research efforts by acting as a conduit for research grants, offers space for visiting scholars, and hosts lectures, symposia and conferences. The BCNM critically analyzes and shapes developments in new media from cross-disciplinary and global perspectives that emphasize humanities and the public trust. The Center for Computational Biology works to advance the interface between the computational and biological sciences through interdisciplinary research and education.

HIFIS started in 2006 as the Berkeley Diversity Research Initiative (BDRI) and is overseen jointly by the VPTLAPF and the Vice Chancellor for Equity & Inclusion. With a gift in 2010 from the Evelyn and Walter Haas Junior Fund, BDRI was renamed the Haas Institute for a Fair and Inclusive Society, and is organized into seven research clusters. As a key component of the UC Berkeley Initiative for Equity, Inclusion and Diversity, HIFIS advances research and policy related to marginalized people and everyone who benefits from a truly diverse, fair, and inclusive society. HIFIS has faculty clusters in Economic Disparities, Disability Studies, LGBTQ Citizenship, Health Disparities, Religious Diversity, Educational Disparities, and Diversity and Democracy. HIFIS has successfully recruited faculty in the LGBTQ, Educational Disparities, Health Disparities, Diversity and Democracy, and Economic Disparities clusters for a total of six faculty members, with additional searches in process. In addition, we have recruited john a. powell (lower-case is his preference) as Director of HIFIS and as a professor appointed jointly in the UC Berkeley School of Law, the Department of Ethnic Studies, and the Department of African American Studies. HIFIS brings together researchers, stakeholders, policymakers, and communicators to identify and challenge the barriers to an inclusive, just, and sustainable society and to create transformative change.

The Blum Center for Developing Economies was created in 2006 to improve the well-being of the over three billion people who live in poverty in the developing world. To assist in promoting its mission, the Blum Center oversees the Global Poverty and Practice (GPP) Minor, the largest minor at UC Berkeley, which gives students training and skills to analyze poverty issues. The Blum Center uses a rigorous, multi-disciplinary approach by integrating innovation and social entrepreneurship to develop appropriate, sustainable solutions to the toughest global poverty

challenges. Since the Minor was initiated, 358 students have completed the Practice Experience requirement, the signature element of the GPP Minor which provides students an opportunity to do fieldwork connecting theory and practice.

With the evolution of the NICs and HIFIS, the campus has worked to institutionalize processes and systems for recruitment, retention and advancement of faculty within these groups, a challenging process that has required much coordination between the administration, academic departments, and the leadership of the NICs and HIFIS. Development of these protocols will help ensure sound practices for recruiting and retaining faculty working on the cutting-edge of interdisciplinary research.

UC's management of three national laboratories—Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory, and Los Alamos National Laboratory—has long provided exceptional opportunities for our faculty and students to conduct primary research with unparalleled research staff and facilities. At Lawrence Livermore National Laboratory, faculty have access to the fastest laser in the world as well as to *Sequoia*, the world's fastest computer. Facilities at Los Alamos support work on space sciences as well as a variety of research initiatives on topics affecting national security. Our close association with the LBNL continues with our expansion at the nearby Richmond Bay Campus. The facilities and programs planned there will open up major new opportunities for long-range research collaborations that the campus intends to pursue and develop.

We are committed to providing the resources needed to support both undergraduates and graduate students and the research enterprise. A new capital budgeting process has made great strides in improving the physical condition of aging campus buildings and effective fundraising campaigns have attracted the resources needed to renew facilities and build new offices, classrooms and laboratories. In the summer of 2012, the renovation of 37 general-assignment classrooms in ten buildings targeted improvements in functionality, aesthetics and comfort. With gift funds, the College of Chemistry recently made a major investment in the state-of-the-art teaching laboratories to serve all undergraduates who study chemistry. The UC Berkeley School of Law completed a major renovation project that created a state-of-the-art library facility and improved classrooms and collaborative/interaction spaces. Also in 2012, the Energy Biosciences Institute moved its UC Berkeley headquarters and research labs into new state-of-the-art facilities, and with the completion of new Stanley Hall and the Li Ka Shing Biomedical and Health Sciences Center, the campus now has completed more than one million square feet of LEED-certified (green building standard) construction. The campus is constructing a new Campbell Hall which replaces a seismically poor structure; the state-of-the-art building will be ready for occupancy by the departments of Astronomy and Physics in Fall 2014. In early 2013, construction began on the future home of the University of California, Berkeley Art Museum & Pacific Film Archive (BAM/PFA) in Berkeley's downtown arts district. The Haas School of Business is close to completing a campaign that will enable the construction of a new building for their expanded programs, and a major gift will enable the College of Engineering to build the Jacobs Institute for Design Innovation, a state-of-the-art facility and program for advanced design and manufacturing. Although, for the time being, the state is no longer investing in capital resources throughout the UC system, UC Berkeley is committed to finding ways to continue investment in our physical endowment to continue to support our students and faculty in their research and scholarship.

Attracting, Retaining, and Supporting a World-Class Faculty [CFRs 3.2, 3.3, 3.11, 4.2]

The campus offers a stimulating academic teaching and research environment that provides incentive for outstanding faculty to work here. We offer countless special lectures and seminars and support a large and growing visiting scholars program. The lively intellectual environment supports learning, debate, and cross-pollination of ideas.

Berkeley has more than 1,500 Senate faculty members housed in 130 academic units. Excellent teaching and research depends on the excellence of this faculty, and Berkeley has been highly successful in attracting world-class scholars to the campus. They are drawn here by the fine students and colleagues they will work with, the strong research support available to them, a strong tradition of shared governance and collegial relationships across the campus, and a congenial physical environment. Under Chancellor Emeritus Birgeneau, major philanthropic efforts such as the unprecedented Hewlett Challenge, which resulted in the creation of 100 endowed chairs at Berkeley, and The Berkeley Collegium, which launched ten endowed chairs devoted to undergraduate teaching, have significantly extended the campus's resource base to attract and retain a world-class faculty. To assist the faculty in attaining the highest levels of achievement, Berkeley has a series of programs to promote comprehensive faculty excellence. These range from programs designed to hire and retain faculty in an increasingly competitive market, programs designed to help faculty to develop new courses and improve their teaching (discussed extensively in a previous essay), programs designed to support new research initiatives and to connect research to the classroom, and rewards that acknowledge and celebrate faculty teaching and research achievements.

We have paid particular attention to our ability to hire and retain the best faculty in the country, monitoring the percent of offers accepted and the percent of faculty retained when competitors make offers to our faculty members. We recognize that there has been a faculty salary gap with private peers and have partially addressed this by adjusting salaries to competitive levels at the time of appointment and at promotion to tenure. We are continuing to develop methods to address the salary gap for tenured faculty members. One such initiative is a three-year, $1.5M program to compensate more adequately the most accomplished faculty who currently do not have salaries that reflect the market rate. To date, Berkeley has awarded $292,100 to the annual salary of 36 outstanding faculty members.

Berkeley provides research grants through the Academic Senate's Committee on Research (COR) as well as through the office of the Vice Chancellor for Research. These research grants allow Senate faculty members to initiate new research, bridge research grants when funds are delayed, cover expenses not funded by extramural funding agencies, travel to conferences, and support graduate students. Such grants pay off in faculty productivity and ability to secure outside funding. The campus is currently considering options to increase the amount of base-line funding provided annually to each Senate faculty member.

The campus also recognizes teaching and research accomplishments with awards to faculty made by their peers. As noted earlier, the Distinguished Teaching Award is given to up to five faculty members each year based upon extremely selective criteria and an in-depth review to recognize individual faculty for sustained performance of excellence in teaching. The Faculty Research Lecture Series recognizes representatives from our distinguished faculty whose research has changed the shape of their discipline, and brings their innovative work to the attention of the entire campus community.

Berkeley has a long tradition of faculty winning national and international honors and awards. There are seven Nobel Laureates, 32 MacArthur Fellows, and four Pulitzer Prize winners among living faculty. We track the number of such awards our faculty members garner as an indication of their exceptional accomplishments. For junior faculty, we monitor the number of national awards that they have won before coming to Berkeley (e.g., Sloan Foundation Fellowships, National Science Foundation Fellowships). These awards are not only acknowledgments of individual accomplishment but also are indicators of our faculty's ability to bring the best new ideas from research into their work in the classroom, which is the hallmark of a research university.

In 2006, the campus launched the UC Faculty Family Friendly Edge, a set of policies designed to give ladder faculty flexibility in balancing career and care-giving responsibilities. These policies are gender neutral and include up to two terms of reduced teaching for new parents with substantial care-giving responsibilities and the option of tenure-clock stoppage for one year each to care for up to two newborn or newly adopted children under five. These policies represent both a response and a spur to a significant cultural shift, expanding opportunities for the full inclusion of women faculty in higher education and a more balanced lifestyle for all. A follow-up study in 2000 found that the family-friendly policies and programs were widely known, used and appreciated. More recently, the campus has provided faculty with low-cost programs of emergency back-up care for children and adult dependents.

As mentioned above, we also are continually adding to or upgrading research facilities, laboratories, and classrooms, ensuring that central campus provides a physical space where cutting-edge research and teaching can take place. Examples of our accomplishments include the Energy Biosciences Building, housing the Energy Biosciences Institute public-private partnership for research into new fuels; the Stanley Hall reconstruction and the Li Ka Shing Center, providing new laboratories for the biomedical and health sciences; the renovation of the Bancroft Library and the construction of the Hargrove Music and C.V. Starr East Asian Libraries; and the planned development of the Richmond Bay Campus. These new facilities will expand opportunities for advanced research which in turn will provide new learning opportunities for students.

Promoting Staff Excellence [CFRs 1.3, 3.3, 3.4, 4.2]

In the area of staff excellence, we have standardized job descriptions for all non-represented staff positions, establishing common expectations through Career Compass, which facilitates recruiting, hiring, expectation setting, performance management and development. We have also made specific investments in areas where we were understaffed, for example, the Offices of Legal Affairs, Audit and Advisory Services, Planning & Analysis, and Ethics, Risk and Compliance Services.

To illustrate, until 2010, the UC Berkeley Office of Legal Affairs (OLA) was comprised of a single attorney. In 2008, Chancellor Emeritus Birgeneau commissioned a task force which identified an expanding need for legal services driven by the campus's status as a major employer, by increasing federal and state regulatory requirements, and by greater demand for service across a range of essential business matters such as industry partnerships, real estate and intellectual property. The task force concluded that these core services could be provided more efficiently, effectively and inexpensively by adding attorneys to OLA rather than relying on outside counsel or UC System-wide resources. The OLA staffing currently includes the Chief Campus Counsel and 2.75 additional attorney FTE. Collectively, these attorneys have over 50

years' experience working in higher education. The OLA legal staff has broad general experience in all aspects of higher education law as well as specialized expertise in business transactions, copyright, construction, real estate and land use, labor and employment, disability law, First Amendment and academic freedom, and litigation.

In 2013, we strengthened our performance management process for non-represented staff with a greater focus on performance results. This closely aligns with the increased emphasis on metrics, Berkeley's Operating Principles, and strategic planning at the unit and campus levels. We also continue to enhance learning and development opportunities for staff and their managers. A Senior Leadership Development Program for administrative direct reports of Deans and Chancellor's Cabinet Members provides an executive level eight-day leadership program for our top 200 leaders taught by Haas School of Business faculty. Human Resources's Learning + Organizational Development team offers leadership coaching based on 360 feedback. Mid-level managers participate in a new Manager Development Program, offered across the UC system. This joins the Manager Assessment Program (MSAP), a one-week residential program also offered to managers on a UC system-wide basis, as the foundation of a management development strategy.

At the professional level, we are creating targeted talent development programs for five key functional areas (Human Resources, Finance, Student Advisors, Research Administration, and Information Technology), which includes courses to develop competence in such critical skills as project management, communications, and process improvement, and access to online learning on every employee's desktop. The campus also sponsors tuition for selected courses through UC Berkeley Extension that build skills needed to support Operational Excellence initiatives. Since its inception in 2012, the program has registered over 700 enrollments.

At the organizational level, we deploy experienced change managers for all major projects – increasing the success of implementation while building capabilities within the University for continuous change. A team of organizational consultants (Transition Services Program) supports the transition of units from the current decentralized service delivery model to the shared services concept. Finally, the Operating Principles project, mentioned in the discussion of institutional values in the introduction, created a set of principles to guide staff in working together to support the academic mission.

Remaining Financially Stable

Berkeley is investing in its workforce and technology and has significantly improved its administrative processes, legal advising and oversight and financial management capacity. Chancellor Emeritus Birgeneau put together an exceptionally talented senior financial leadership team that has professionalized Berkeley's financial management, permitting us to stabilize our budget in the short to medium term and to develop a sustainable financial model for the future in support of access and excellence. At the height of the financial crisis in 2008, he created a short-term Vice Chancellor position for an individual with private sector management expertise to work with the Vice Chancellor for Administration and Finance (VCAF) to guide the campus through a period of financial uncertainty by committing us to developing dynamic, adaptable, and sustainable financial strategies and a modern budgeting system. In 2009, an Associate Vice Chancellor–Chief Financial Officer was hired to provide overall leadership, direction and priority-setting for budget planning and institutional data at UC Berkeley. In 2011, a new VCAF with extensive experience in finance, economics and managing highly complex, large

organizations was recruited. The modernization of UC Berkeley's financial strategies has taken a number of years and has succeeded because of dedicated campus leadership.

Reinvigorating Public Support for Higher Education

All institutions of higher education must carefully manage their financial well-being, but public universities today face a particularly strong set of challenges. Public universities have traditionally received a major portion of their funding from state treasuries. Through a series of external drivers and with the recent financial crisis, state funding for many public universities has been drastically reduced in recent years. Most public universities have made large-scale cuts to faculty, staff and programs, raised tuition and sought new funding sources. Yet budgets remain extremely tight.

While Berkeley has experienced a sharp decline in state funding, we have not had to make deep cuts to our core mission. While Berkeley's tuition for California residents is still average among public institutions, we have, however, had to implement significant tuition increases, whose impacts on students and their families we have been able to soften through innovative financial aid programs. The faculty have helped to increase our revenues by securing high levels of externally funded research. The campus also has mounted successful philanthropic campaigns and has implemented cost-saving measures, reducing staff and consolidating services to academic departments and research units, and instituting money-saving procurement processes.

Berkeley remains strongly committed to our public character, which we measure by where we spend our resources, not where they originate. However, we also remain hopeful that the rebounding economy will allow State funding to regain significance. Berkeley faculty recently published a study entitled *California's Economic Payoff* that demonstrates the benefits of California's funding of higher education, both in terms of how it supports students and their families and supports the state through higher returns. The payoff from public investment in higher education is significant and the benefits extend far beyond its immediate recipients. Recently, with the passage of Proposition 30 and state support for a Middle Class Scholarship Plan and the allocation of sufficient funding to allow us to freeze tuition for the coming academic year, there is evidence of a renewed commitment to reinvest in higher education among the public and state government.

A New Financial Strategy [CFRs 3.1, 3.3, 3.5, 3.6, 3.7, 3.9, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6]

Berkeley has a three-pronged financial strategy—to control expenses, to grow revenues, and to improve resource allocation (see Figure 10). This financial strategy is designed to support the education, research and service goals of the campus. The financial strategy both responds to and informs the campus's long-term strategic planning documents, including the 2002 Strategic Academic Plan (along with a five-year update in 2008), the Two-Year Goals report (see Appendix A), the Chancellor's Vision on Access and Excellence, discussed in the introduction, along with the 2009-2019 Capital Financial Plan. We anticipate an acceleration of our strategic-planning direction under the leadership of Chancellor Nicholas B. Dirks, who began his tenure in June 2013.

The campus currently executes its plans through the annual update of the Two-Year Goals report. This document touches all major portfolios on campus and contains strategies specific to goals to promote comprehensive academic excellence, student success, world-renowned research leadership, equity and inclusion, world-class administrative operations and infrastructure renewal, all supported by a sustainable financial model.

Until a few years ago, Berkeley had a decentralized financial management approach that was dependent upon incremental budgeting and was confused

Figure 10. **A Three-Pronged Financial Strategy Supports Our Mission and Objectives**

by the comingling of funds of sibling campuses at the system-wide level. A new, more transparent financial arrangement between the UC campuses and University of California Office of the President (UCOP) will greatly facilitate better campus-level budget planning and management. Changes at UCOP have greatly reduced the commingling of funds. Changes in Berkeley's budgeting approach have led to a new process in which we consider all available funds and expenses in prioritizing campus and unit financial strategies, and track performance using a common set of metrics. We have made great strides in building a sustainable financial model since our last review, and Berkeley is now well positioned to launch a campus-wide planning process that better responds to change and risk.

Greater transparency in funding sources and expenditures and improved financial management systems are allowing us to prioritize funding and measure its impact in areas that directly affect outcomes. For example, we will be able to measure how expenditures on additional sections in required courses or investments in new student service programs affect outcomes such as time-to-degree, graduation rates, degrees awarded, and student indebtedness. Our analyses to date further reinforce that our campus is a solid investment for students, parents and the state. The new systems also allow us to share the data on our challenges and our accomplishments with the campus community, the UC system, external partners, elected officials and the public. We believe that such openness about our budgets will help make the case for investment in higher education. Greater transparency regarding our finances will make it clear that we are attentive guardians of public funds and help build support for continued investment in higher education.

Over the last couple of years Berkeley has published both a Financial Report and a Budget Plan to help communicate our financial condition and strategy. Our financial report looks back to monitor our financial health. Our Budget Plan helps us to look ahead and is the direct result of investment in CalPlanning (our campus budget tool) and concerted outreach efforts to work with all units across the campus to be able to integrate this tool into their operations. The Budget Plan represents our university's first "all-funds, all-units" budget model that comprehensively describes revenues and expenses in every major portfolio, which then roll up to a campus total. In addition, the Vice Chancellor for Administration and Finance, the Associate Vice Chancellor-Chief Financial Officer, and Budget Office leadership have held two Financial Summits with the campus community, multiple faculty and staff, and student forums.

As previously noted, Berkeley has completely revamped the support services provided by the Office of Planning & Analysis, which now collaborates with other units to provide consulting support, proactive analyses, and data visualizations that help campus decision-making. For example, when an undergraduate enrollment task force decided to change the mix of our student body to enroll a larger portion of out-of-state and international students, it also decided to direct a portion of non-resident tuition to expanding the Common-Good Curriculum (e.g., reading and composition, entry level math and science and foreign language courses). With additional funding, targets for additional course offerings and enrollments were set and the Vice Provost for Teaching, Learning, Academic Planning and Facilities, affected academic units, and the Office of Planning & Analysis, worked together to meet those targets. Dashboards were created to track enrollments in the early weeks of the semester to ensure all seats were filled. An annual report was also created to illustrate the impact of directing these funds to the common-good curriculum, which supports our goal of ensuring timely access to courses needed to declare a major and graduate. This experience serves as a model for the kind of curricular reporting we will have through Cal Answers so that all units on campus can align and track funding to curricular goals.

All of these efforts help eliminate silos and foster collaborations to improve our financial management and decision support. As a result we have a more holistic and integrated approach that benefits the common good, and we have a much better understanding of our overall financial position. Still, there is more to be done, and we will be proactive in building on these successes

UC Berkeley's Operational Excellence (OE) program began in 2009 as a multi-year, multi-project initiative with three core goals: (1) to achieve $75M in annual savings from a one-time $75M investment in new technology, staff development, and improved processes with those savings redirected to support teaching, research, and public service; (2) to improve the efficiency and effectiveness of administrative operations; and (3) to embed a culture of continuous improvement within our administrative operations. As of May 31, 2013, the OE Program Office (OEPO) has committed (i.e., assigned to portfolio projects) $65.4M in one-time investments with a projected return on investment of $82.5M in year-after-year savings when the projects are fully transitioned to operations. Actual OE investment-to-date is $41.7M with cumulative savings-to-date of $63.6M. Consistent with the OEPO's policy of transparency, project financial profiles, along with program documentation, are available at http://oe.berkeley.edu.

OE projects are achieving results. Unit Restructuring, completed in 2011, simplified administrative operations by increasing the number of direct reports per manager leading to $41M in cumulative savings-to-date. BearBuy is an online purchasing system that provides the platform for integrated purchasing operations at UC Berkeley and UC San Francisco. BearBuy-enabled savings for UC Berkeley alone total nearly $18M in cumulative savings as of May 31, 2013 with projected annual savings of $33M by 2016. CalPlanning, UC Berkeley's new budgeting system, has made possible the campus's first comprehensive, all-funds budget. Campus Shared Services, which began a phased roll out in January 2013, integrates into one service center common transactional functions in human resources, information technology support, business and finance, and research administration. The Energy Management Project provides the reporting tools that identify opportunities to reduce energy consumption and achieve savings, while aiding the campus in meeting targets for greenhouse gas reductions. Through these projects and others in the program's portfolio, OE is supporting financial sustainability, while improving the quality of administrative operations.

UC Berkeley also recognizes that financial sustainability requires growth, as well as efficiency. The Vice Chancellor of Administration and Finance has expanded the responsibilities of the

[OEPO](#) to include strengthening and enabling innovative ideas that have the capacity to bring new net revenue to the campus. OEPO leadership has demonstrated proven skills in transformational change management, as well as in project assessment and management, to support the successful facilitation of revenue-generating projects. In the fall of 2012, a Revenue Generation Symposium introduced this initiative to campus, followed by a spring 2013 symposium, which highlighted the role of the OEPO in unit-level entrepreneurship and a number of potential [revenue generating projects](#) in the pipeline.

Berkeley's 2011-12 Financial Report moves us closer to all-funds budgeting and stand-alone reporting, by including campus funds previously reported through the UCOP. We are now able to use standard financial metrics to gauge the university's financial health. These metrics show that Berkeley is in a sound financial position, but they also reinforce the importance of the financial strategies described earlier. This information allows our campus leadership to make better management decisions and to explain them to constituents, and to integrate financial decisions with planning efforts to achieve strategic initiatives. Berkeley also must follow overall policies set by UCOP, like the UCOP debt policy which guides the amount of operating budget for debt service.

To provide a clearer picture of our financial situation, Berkeley has begun using the Composite Financial Index (CFI), a unique metric designed by business officers specifically for institutions of higher education for modeling financial statements to functionally assess performance (see Figure 11). In generating the CFI, large-value financial data are converted into a simplified set of ratios that speak to the organization's capacity to respond to financial needs and stresses.

Figure 11. **Understanding Berkeley's Composite Financial Index**
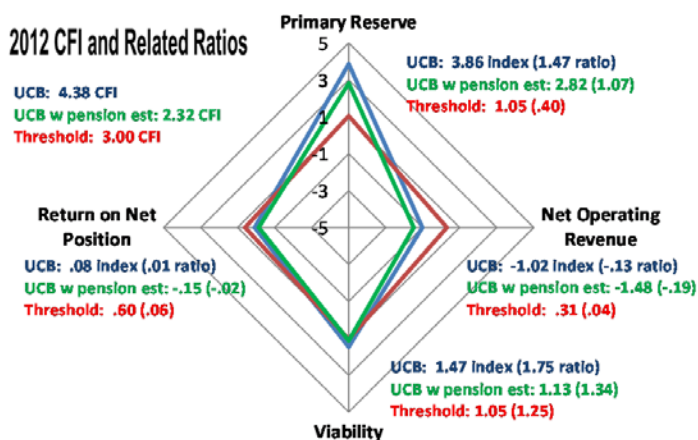
The CFI is calculated based on the following four ratios:

- **Primary Reserve** compares expendable net assets to total expenses. It measures whether resources are sufficient and flexible enough to support the mission and answers how long we could function using expendable reserves without using additional net assets from operations.

- **Net Operating Revenue** compares operating activities to operating revenues. It evaluates whether the institution is living within available resources and whether it is operating in surplus or deficit.

- **Return on Net Position** compares the change in total net assets to the beginning total net assets. This ratio assesses whether asset performance and management support the strategic direction and whether our restricted and unrestricted assets are increasing or decreasing.

- **Viability** compares the total resources that could be spent on operations to the long-term debt. It assesses whether debt resources are managed strategically to advance the mission and determines whether we meet our entire debt obligation with expendable assets.

Berkeley's ratios, based on 2011-12 data, are plotted in blue. The green line estimates the impact when we include our portion of the pension obligations. The demonstrated impact of pension liability is greater than we expected. We are challenged to provide exact figures because the pension is managed at system-wide. We will continue to work with them to better estimate these figures.

Ideally, the Primary Reserve and Viability ratios would fall relatively equidistant from the center point, but outside the red line which indicates threshold values. The same would be true of the Return on Net Position and Net Operating Revenue.

The CFI value (4.38 without pension) is a weighted average of the four component ratios and is an indicator of Berkeley's overall fiscal health. The National Association of College and University Business Officers (NACUBO) uses a threshold value of 3.0 for the CFI. Berkeley's score of 4.38 is above the threshold indicating financial well-being and while the estimate including the pension is at 2.32, we believe our current estimate of the pension impact is overstated. With a better estimate of the impact of pension liabilities, we believe we should be somewhere in the middle and likely above the 3.0 threshold. We also believe that understanding the individual ratios that make up the CFI, specifically the variation in the Primary Reserve and Net Operating Revenue ratios, helps reinforce our financial strategies.

First, while our Primary Reserve ratio is above the threshold level, it is lower than several of our private competitors whose values range from 3.5 to eight, thus making it all the more essential that we manage our resources effectively. Berkeley's reserves provide a source of flexibility and stable funding. And we have been able to direct the use of reserves toward investments in revenue-generating and cost-saving efforts. In addition, CalPlanning has provided our campus greater visibility into all funds and reserves within a department or division. We can now advocate the use of reserves to advance strategic directions that will support unit goals, create future efficiencies, generate revenue and support faculty, students, and staff. In short, we are now able to view and plan for use of our resources to meet short and long-term goals.

Second, the negative Net Operating Revenue ratio reinforces the importance of improving our campus financial strategies. While this ratio excludes some important sources of revenue to campus (private gifts and investment income, for example), reviewing it indicates a need to continue to improve our operating performance. According to NACUBO, a small deficit in net operating revenues may be relatively unimportant, if the institution is financially strong, aware of the causes of this deficit and has an active plan in place to address this deficit. When Berkeley delivers on our financial strategies to control expenses, grow revenue, and improve resource allocation, we expect that our Net Operating Revenue will improve.

Furthermore, next year's Financial Report will provide us three-years' worth of CFI and corresponding ratios, along with a better estimate of pension liabilities. We will be a stronger and smarter institution because of the investments we have made and how we have adapted to the loss of state support.

Berkeley's Financial Strength and Opportunities [CFR 3.5]

The CFI calculation helps reflect our current fiscal strength. When we consider implementation of our financial strategies and other factors, we believe this measure will continue to improve.

For example, student demand for Berkeley's programs continues to grow. For our 2013-14 class, more than 67,000 students applied, nearly ten percent more than last year. That growth was primarily among out-of-state and international students who pay non-resident tuition. We also see growth in our graduate programs, including in those with a professional development fee and in self-supporting programs.

In addition, Berkeley faculty are in high demand and are frequently recruited by peer institutions; however, overwhelmingly, Berkeley faculty decide to stay and the campus has been particularly successful when it comes to faculty retention cases. In 2010-11, there were 48 new retention cases of which 24 were decided and 20 retained, resulting in an 83% retention rate. The campus also continues to be successful in attracting new faculty and in 2012-13, there were 73 offers of ladder-rank appointments, of which 60 have been accepted or declined to-date, with a 95% success rate.

Throughout these fiscal challenges, Berkeley continues to rank among the top research universities in the nation and the world (2012 US News and World Report, 2012 Times Higher Education, and 2012 Shanghai Jiao Tong rankings). The most recent National Research Council ranking found 48 of UC Berkeley's 52 ranked Ph.D. programs placed within a range that included the top ten, compared to 47 of 52 programs for Harvard University, which came in second, and 40 programs for Stanford University and the University of Michigan-Ann Arbor.

Furthermore, Berkeley has been extremely successful at fundraising. The Campaign for Berkeley to raise $3B dollars is almost complete. The Hewlett Challenge to endow 100 faculty chair positions was completed two years ahead of schedule. The Council for Aid to Education released its annual college fundraising survey and found UC Berkeley was the leading fundraiser among all public universities in the 2012 fiscal year, taking in $405M. Since our last WASC review, the University of California, Berkeley Foundation (UCBF) created the Berkeley Endowment Management Company (BEMCO) to manage the investment of endowment gifts, which ensures the highest quality of stewardship of assets private donors have entrusted to the UCBF.

Finally, Berkeley has developed a model to project our financial position ten years out. In addition to illustrating how our revenues and expenses compare if we follow the status quo, this model also measures the impact of other policy changes (e.g., changing student fees, non-resident enrollment, pension contributions, salary increases, etc.) and improves our ability to communicate to our stakeholders that there is no silver bullet to improving our financial position and to engage them in a rigorous discussion of our financial options and strategies. We have initiatives to improve revenue growth across the campus, including the successful negotiation of new Facilities and Administrative rates (F&A or indirect cost recovery rates) with the federal government, more than double the single largest rate increase in Berkeley history. As a contributor to the overall financial plan, indirect cost recovery is a major source of discretionary funds for campus priorities.

Future Governance Issues [CFRs 3.8, 3.9, 3.11, 4.1, 4.6, 4.8]

As mandated by the University's governing body, the Board of Regents, the faculty is empowered to determine academic policy; set conditions for admission and the granting of degrees; authorize and supervise courses and curricula; and advise the administration on faculty appointments, promotions and budgets. This delegated authority makes the UC Academic Senate unique among faculty governments.

The System-wide Academic Senate, along with its campus divisions, provides the organizational framework that enables the faculty to exercise its role in the University's governance. The Berkeley Division of the Academic Senate formulates positions on campus and system-wide issues through a deliberative process that includes standing committees, Divisional Council, and plenary meetings of its Senate membership. Berkeley Senate leaders also consult regularly with their administrative counterparts and advise on many administrative issues.

As Berkeley has tackled the challenges we have faced, we have included faculty members and leadership within all efforts. For example, the Operational Excellence Program Office has a faculty lead, the Berkeley Resource Center for Online Education (BRCOE) has an academic director partnered with its Executive Director, and the Global Engagement Office (GEO) is headed by a faculty member. Campus enrollment planning is managed through the Executive Vice Chancellor and Provost's office and implemented through a Coordination Board of Schools/Colleges and administrative staff. Both a revenue-generating symposium and two finance summits included participation by administrative and academic leadership. Our efforts to better link the strategic planning process to financial planning by operationalizing two-year goals at a campus and unit level will continue this essential partnership between the academic and administrative units.

In addition, the partnership with University of California Office of the President (UCOP) is critical for Berkeley to be able to achieve our goals (see Figure 12). In 2011-12, UCOP approved the Funding Streams Initiative, designed to simplify the flow of funds to and from UCOP and the campuses. This allows each campus to better plan for and control its revenues in a number of areas. For example, each campus will retain the tuition and fee income it generates, which will promote better enrollment planning. This UCOP initiative to simplify and decentralize will enhance campus strategic planning efforts. This initiative should be expanded to include other financial transactions.

Figure 12. **Real Work Requires Strong Relationships**

- Real solutions require us to **think differently** and have honest discussions, the real discussions
- Solutions require cross-campus, cross-functional engagement. We must **break down silos** to create better, higher functioning solutions.
- This requires **collaboration and trust** at all levels

UCOP	• Engage on critical opportunities and impediments to success • Ensure we are always adding value – Time and resources should be invested where the return on investment is highest • Challenge the status quo to help campuses grow & succeed
Campus	• Operationalize campus financial model • Increase revenues, drive down cost, and improve efficiencies • Clarify and correct financial incentives • Support transparency, clarity, and accountability to campus
Schools / Colleges	• Generate new ideas and local initiatives, address local challenges, develop robust local strategy & budget processes • Adopt new tools and frameworks to improve local controls and financial understanding to maximize opportunities and use all funds and balances more strategically
Faculty	• Standardize and improve services and support for all faculty, not just those in the wealthier schools or colleges • Key priority to continue investing in faculty staffing, salaries, research, and academic support

Berkeley strongly believes that to be competitive, campuses must have the capacity to focus on their unique advantages and develop their own business models that fully reflect their unique characteristics and create a more sustainable model to succeed.

The UC Berkeley Business Plan lays out a multi-pronged approach that includes working
- with federal and state governments on creative models for reinvestment in the campus and to address growing costs, such as pensions;

- with the UC system on greater latitude regarding tuition and fees, salary and benefit structures, financial aid packaging and alignment with revenue streams reform, financing structures for capital projects and deferred maintenance, investments, and campus governance structure;

- on campus to build fundraising capacity, expand research contributions, deliver education through digital channels, promote financial visibility and use of tools, increase support for entrepreneurial activities of the faculty, Schools and Colleges, and leverage the once-in-a-generation opportunity that the Richmond Bay Campus development provides.

Berkeley recognizes that these actions are not all that is required, but that they do form the foundation of a plan that will move us in the right direction and a way for our key constituents to get engaged. We feel confident that we have a sustainable path forward to ensure our campus remains strong so we can live up to our commitment to provide Access and Excellence.

Future Priorities, Future Directions

Our priorities are clear: Berkeley will maintain its comprehensive excellence, assure access and affordability for students, sustain a robust curriculum, lead in research, provide service to the nation and the state, and provide an excellent work environment for all its employees and students. In the Berkeley tradition, we aspire to lead higher education by rising to the challenges and capturing the opportunities posed by globalization and new educational technologies. Through strategic new approaches to education and finance, we will improve our performance and protect our future. Through advocacy and participation in new collaborative efforts, we will engage broad constituencies to take the bold steps necessary to stabilize the financial model for our public universities. We are committed to our mission and confident in our ability to sustain it and to move forward successfully.

Raising the Bar on Strategic Planning and Resource Allocation

Wise stewardship of our finances is the foundation to achieving our goals. Berkeley has been able to navigate challenging financial times, and through improved financial management, make strategic decisions in support of Access and Excellence, including being the first public institution to provide needs-based financial aid through the Middle Class Access Plan and prioritizing our investments in our critical entry-level courses to support students and lower their overall cost of attendance and time-to-degree. We will continue to develop new management approaches as well as new revenue sources to assure our financial security.

To support our strategic goals, we are strengthening the linkages between strategic planning and resource allocation under the leadership of the Vice Chancellor for Administration and Finance, utilizing a metrics-driven approach. To illustrate, Graduate Division, which is an administrative unit that has responsibilities that extend over all of graduate education, is part of a pilot of a Strategic Management and Metrics Project within the Operational Excellence portfolio. The purpose of this project is to develop an integrated framework for greater alignment between the strategy of the university at all levels, resource allocation, and concrete indicators of how we are measuring up to that strategy. As a pilot, Graduate Division is involved in drafting key metrics that will be calculated at the programmatic and departmental levels, but then reported at the decanal level. These metrics involve aspects of the health of programs: selectivity, yield on admissions, average net stipend, time-to-degree, completion rate, etc. The metrics will be recalculated and included in documents relevant to each annual budget cycle for each of the academic deans. Other types of nonfinancial and financial metrics (i.e., outside of graduate education) will eventually be included through this mechanism, with a goal of maintaining leaders' focus on matters of strategic significance within their portfolios of responsibility.

The pilot will leverage Graduate Division's annual statistical reports to all degree programs, with comparison data to like programs and to the campus as a whole. We plan to use these comprehensive reports to extract key indicators for the Strategic Management and Metrics pilot, as well as to create a more accessible dashboard for programs' use directly. The latter would include evaluative comments by Graduate Division where review indicates a need for programmatic focus, with follow-up meetings between program leadership and Graduate Division, where advisable.

The Graduate Division pilot, together with two other pilots being undertaken by Student Affairs and by the Haas School of Business, point the way to a more nimble strategic management that will support an iterative, top-down, bottom-up process, with planning occurring at all levels. At the campus-wide level, we are developing an integrated framework for strategic focus and resource allocation, including supporting UC Berkeley's capacity to clearly communicate its overall goals and priorities related to access and excellence. This will allow for well-aligned metrics to be cascaded to units and will allow UC Berkeley to better communicate progress. At the unit level, we are developing a framework and a toolkit that supports units in defining strategic goals, linking their strategic initiatives with their budgets, and measuring performance, based upon meaningful metrics. This framework will link to the annual budget cycle and will build upon the university's recent budget reform work, which has provided a critical financial baseline to inform long-term strategic planning. The executive leadership and local unit leadership will all be supported by web-based, up-to-date management reports that report graphically on a unit's comprehensive set of metrics, including financial, non-financial, academic and administrative metrics, and improve consistency of measures across campus. These efforts demonstrate our commitment to sustained, evidence-based, participatory discussions about future strategic directions, in keeping with WASC's Standard 4. Creating an Organization Committed to Learning and Improvement.

Re-Imagining the Undergraduate Experience at a Public Research University

Under the leadership of Chancellor Nicholas B. Dirks, we are renewing our commitment to our undergraduate educational mission and raising it to a new level of strategic campus-wide commitment. Berkeley has a long history of innovative, cutting-edge teaching and learning programs. Berkeley pioneered personalized mentoring and tutoring through the establishment of the Student Learning Center in 1973. In the early 1990s, Chancellor Emeritus Chang-lin Tien led American research universities by establishing Freshman Seminars for all entering students, ensuring them of close intellectual contact with faculty as part of their first-year experience, as well as by developing pioneering programs for mentored undergraduate research and independent scholarship, such as the University Research Apprentice Program (URAP). These campus-wide programs are complemented by a longstanding commitment to undergraduate education at the departmental level, where previously curricular conversations about undergraduate education occurred primarily.

As noted in the introduction, the last WASC Visiting Team, led by David Ward, commended us for our many innovative programs and urged us to scale up our efforts into an integrated whole that would be greater than the sum of its parts. A decade later, Berkeley has taken up that challenge with renewed vigor, led by the academic leadership in the College of Letters & Science (L&S) in partnership with the Vice Provost for Teaching, Learning, Academic Planning and Facilities. The year-long L&S Faculty Forum on Undergraduate Education represented a new level of discourse on what it means to be an undergraduate at one of the world's premier research universities (Re-imagining Undergraduate Education at Berkeley). Out of that forum, a working concept paper, Berkeley 4.0, emerged, which has been guiding a campus-wide conversation about reimagining the undergraduate experience at Berkeley. This working paper highlights three over-arching themes guiding a comprehensive array of initiatives to transform undergraduate education at Berkeley. Many of these initiatives have been highlighted in our self-study. Our commitment to creating a pervasive culture of mentoring to personalize education in a research university is represented by the new Berkeley Connect program and the SMART program, both of which link undergraduates, graduate students and faculty in mentoring

communities. Our ongoing agenda of continuous innovation in the curriculum is exemplified by curricular innovation projects like [Course Threads](#) and [Big Ideas](#) and by the re-examination of our breadth curriculum currently underway. Our long-standing commitment to teaching excellence, signaled by the creation of the [Distinguished Teaching Award](#) in 1959, has been renewed through the newly launched year-long [Teaching Excellence Colloquium for New Faculty](#) and by the establishment of [The Berkeley Collegium](#), composed of endowed faculty chairs dedicated to undergraduate teaching excellence, both launched in 2012-13. Finally, our focus on enhancing academic support from orientation through graduation is exemplified through initiatives to create an Advising Council to coordinate and strengthen advising campus-wide and to improve online student systems and services to match our academic excellence. Where once the discussion of undergraduate education occurred primarily in individual academic and academic support units, today the dialogue about reimagining undergraduate education is a campus-wide dialogue engaging leadership at the highest levels of the Chancellor's Cabinet and the Council of Deans. We are fully committed to engaging and sustaining the conversation about teaching and learning that has been a focus of this institutional self-study.

The Richmond Bay Campus: Site for Innovation and Collaboration

The Berkeley campus is launching the development of the Richmond Bay Campus (RBC) to provide a site for innovation and development of large-scale research initiatives that are project based, and in many cases multi-disciplinary. The campus will partner with Lawrence Berkeley National Laboratory (LBNL) and others to develop the site. Because the Berkeley campus values intellectual contiguity, it will maintain on the Berkeley campus, the homes for all its academic and professional schools and colleges. The new campus will build a new partnership for scientific innovation seeking solutions that address 21st century problems in energy, the economy, the environment and human health. The RBC will provide sufficient research, educational and support space to foster synergy and collaboration within and across disciplines and institutions in both the public and the private sectors. Incubators and startups will have space at the new campus, as will institutions, corporations and other partners that want to co-locate with Berkeley and LBNL faculty and staff. Our goals involve catalyzing new discoveries, fostering economic revitalization and enhancing community vibrancy by facilitating the research and development enterprise and fostering connectivity with the surrounding community of Richmond. And we envision new and different opportunities for students on the site, all of which we will be planning for, and unfolding over the next decade and beyond.

Future Options for Strengthening Global Ties

Among the options that have been considered for the former Richmond Field Station (in combination with neighboring properties, now known as the Richmond Bay Campus), The International Strategy Task Force proposed developing the Richmond Field Station as a site for "intellectual insourcing," including offering space to foreign universities to set up collaborative research labs or centers. The full vision for the allocation of space and activities at the RBC remains to be determined. Another of the task force's recommendations, yet to be realized, is a suggestion for "outward globalization," i.e., that UC Berkeley open an office in Shanghai or Beijing to strengthen ties with China's political and educational elite. A convincing case for a physical presence in China can be made based on the capability to launch numerous activities: (1) executive education programs; (2) conferences that could promote joint research and also enhance ties with Chinese political and academic leaders; (3) international student recruitment; (4) alumni relations that could bolster fund raising; (5) deploying UC Berkeley undergraduates

for study abroad; (6) facilitating UC Berkeley researchers; and (7) introducing humanities and liberal arts courses in China. However, given various political and resource considerations, Berkeley has taken a cautious approach to establishing a physical presence abroad.

Chancellor Dirks arrives at Berkeley with experience in successful institutional strategies for establishing satellite offices in global urban centers where alumni and other interested parties can learn about the home institution and students and faculty abroad have a home base to facilitate their studies and research. Under Chancellor Dirks's leadership, Berkeley will investigate building on its existing international programs and partnerships in many countries by opening several global offices to facilitate international institutional collaborations, joint research, study abroad, including student internships, alumni relations and student recruitment.

The Residential Campus in an Online Age

In an era of massively-delivered online education and asynchronous learning, the residential character of the Berkeley campus remains core to our academic mission, even as we integrate possibilities afforded by new technologies into our curricula and our teaching and learning environments. The campus is, of course, more than the sum of coursework taken by our students. Students study together, volunteer in the community, articulate political and cultural viewpoints and, famously, demonstrate about issues they are passionate about. They attend seminars, public lectures and performances at venues such as the Pacific Film Archive and Cal Performances. They participate in athletics that range from Olympic competition to co-ed intramural contests. They engage with material culture and artifacts at our many museums, with plants and trees in our arboretum, and with rare books and manuscripts at our Bancroft Library. All of these experiences contribute to education at Berkeley.

In Spring 2014, we are co-hosting with Stanford University, Harvard University and MIT, an Online Learning Summit that will bring together senior officers and academic leaders to consider the conference topic: "How Technology Impacts the Pedagogy and Economics of Residential Higher Education." We are cognizant that online education will provide a wealth of data analytics that can be used to understand how students learn and to redesign curricula to improve student learning in both online and traditional settings. In the maelstrom of change confronting higher education, we feel an obligation to chart a course that preserves the unique character of Berkeley's contribution to the higher education mission, while also responding to a rapidly changing landscape. As we continue to innovate, we remain committed to the core values demonstrated in this institutional self-study that have allowed us to become one of the most successful research universities in the world. We chart our course toward the future, mindful of this special responsibility.

UC Berkeley admits talented, motivated, and diverse students and provides them opportunities to fulfill their potential as varied and innovative as imaginable. Reading about the five most recent University Medalists ([University Medalist 2009](#), [University Medalist 2010](#), [University Medalist 2011](#), [University Medalist 2012](#), [University Medalist 2013](#)) for instance, illuminates the maxim of access and excellence that characterizes the Berkeley mission and experience. And Berkeley itself is consistently ranked with the world's most elite institutions for its educational excellence. In this narrative we have tried to convey the richness and dynamism of the educational enterprise at Berkeley, driven by world-class faculty, who have chosen to build their careers at a public institution of higher education that is committed to excellence, access, and public service, a very broad mandate indeed. The tradition of shared governance which underpins educational quality

at Berkeley not only gives a leading role to faculty who are at the frontiers of intellectual inquiry as institution builders, but also creates the many opportunities for subsequent generations to succeed them in this or any other endeavor. We look forward to engaging with WASC reviewers and to responding to any further inquiries about UC Berkeley.