BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

Chair of the Assembly and the Academic Council Faculty Representative to the Board of Regents University of California 1111 Franklin Street, 12th Floor Oakland, California 94607-5200

June 17, 2010

#### CHAIRS OF SENATE DIVISIONS AND COMMITTEES UNIVERSITY OF CALIFORNIA

## **Re:** Urgent request for informal comment on new Commission on the Future recommendations

Dear Colleagues,

Henry C. Powell

Fax: (510) 763-0309

Telephone: (510) 987-0711

Email: *henry.powell@ucop.edu* 

As you know, the Commission on the Future (COTF) met on Monday, June 14. It will meet again on a date in August to be determined. At the June meeting, the Commission was asked to focus its discussion on a subset of the recommendations it had received from its working groups, which your committees and divisions had reviewed. In addition, a number of new recommendations were introduced that had not previously been circulated. After the Monday meeting, new recommendations from four of the five Working Groups were posted on the Commission's website.

Thanks to the effort of all of the divisional and systemwide committees and individual faculty who responded to the first round of recommendations, the Senate's voice was prominent during the Commission meeting.

While the agenda for the Commission's August meeting has not been set, Vice Chair Simmons and I feel that it is crucial to be prepared with Senate comment in case any of the new recommendations – those presented at the June 14 meeting and those subsequently posted – are addressed. We understand that most divisions and committees have concluded their formal meetings for this academic year. However, given the import of some of the recommendations for the future of the university, we ask that you provide whatever comment you can, focusing on those that you believe are most significant. Many of the new recommendations are iterations of recommendations on which the Senate already has commented. If your division's or committee's comment on prior recommendations is relevant, please bring this to our attention.

The new recommendations are attached in a single pdf document. They include:

- 1. Three recommendations from the Size and Shape Working Group (pgs. 6-21)
- 2. Two recommendations from the Education and Curriculum Working Group (pgs. 22-52)
- 3. Three recommendations from the Access and Affordability Working Group (pgs. 53-60)
- 4. Six recommendations from the Research Strategies Working Group (pgs. 61-89)
- 5. Ten "Expanded Recommendations" listed in the June 14 agenda (pgs. 90-123)

6. Seven recommendations from the Council of Vice Chancellors (pgs. 124-125)

Please note that we have not included the Academic Council's recommendation, although it also was on the June 14 Commission meeting agenda. At a meeting of the Academic Assembly on June 16, the Assembly voted to send Council's recommendation, with an alternate version drafted by the UCLA division, for formal systemwide review and comment in the fall.

We ask that you send comments on the items listed above to <u>senatereview@ucop.edu</u> by **July 23** so that the Academic Council can discuss the recommendations at its final meeting on July 28. Please do not hesitate to contact me if you have any questions regarding this request.

Sincerely,

ten Formere

Henry C. Powell Academic Council

Copy: Academic Council Martha Winnacker, Academic Senate Executive Director

## UC COMMISSION ON THE FUTURE

# WORKING GROUP SECOND ROUND RECOMMENDATIONS JUNE 14, 2010

## Size and Shape

- Recommendation 6: Strategic academic planning in a systemwide context UCOP in conjunction with the Academic Senate should collaborate to develop an academic planning framework that takes into account campus priorities and resources in the context of systemwide resources. They should also work to make it easier for students to enroll in and obtain credit for courses offered throughout the UC system. In addition, UCOP and the Academic Senate should require greater curricular and programmatic collaboration across the system. (pp. 1-6)
- Recommendation 7: Campus Funding Allocate undergraduate financial aid based on student need; maintain the undergraduate student self-help component of financial aid at the same level across all campuses. Endorse the proposal to fund the Office of the President by an assessment on campus resources based on all campus revenue. Change the funding model for the campuses by allowing campuses to retain the education fee increases generated by their own students and by readjusting the base funding formulas for the campuses. Do not automatically apply education fee increases to academic graduate students. (pp. 7-10)
- Recommendation 8: Enrollment Recommit to the California Master Plan for Higher Education standard of eligibility for admission of twelve and a half percent of California high school graduates to the extent resident applicants are funded by the state; increase nonresident admissions to meet campus capacity; reaffirm the 60:40 ratio of upper division to lower division; move towards a 1:2 ratio of community college transfers to freshmen if the state is willing to increase state funding for upper-division instruction; consider additional measures to address excess time to degree; maintain or increase graduate student enrollment; support self-supporting terminal Master's degrees; encourage studies of UC professional schools modeled on the recent UC Health Affairs report. (pp. 11-16)

## **Education and Curriculum**

- Recommendation 5: Direct the Academic Planning Council at the Office of the President, by spring, 2011, to:
  - Develop a position statement that makes it clear that any changes made to education and curriculum at the University of California should preserve or enhance educational quality.
  - Develop and endorse a framework document that identifies general guidelines and parameters for educational quality at UC, and a set of measures that effectively describe factors related to quality. Those measures should be incorporated into a periodic systemwide assessment of quality. Measures of access and affordability should be included as components of quality in the performance of UC's educational mission.

Additionally, the Commission on the Future should endorse the use of outcome

assessment as described by the UC Senate Undergraduate Educational Effectiveness Task Force in the report entitled "UC Way to Educational Effectiveness" as a means of developing information showing success in meeting learning objectives in UC coursework. (pp. 17-45)

 Recommendation 6: Improve the student transfer function by requesting that UC campuses publish the lower-division pre-major requirements they expect from students for admission to each major. This will help minimize the number of students transferring into a program without the lower-division courses needed to be admitted to their major of choice, and facilitate a reduction in the time to degree for transfer students. (pp. 46-47)

## Access and Affordability

- Recommendation 7: Continue to allocate undergraduate systemwide financial aid funding to equalize expectations for student borrowing and work across all students at all campuses. (pp. 48-49)
- Recommendation 8: Provide additional financial support to middle-income families while preserving access for low-income families. (pp. 50-52)
- Recommendation 9: Explore options for achieving the twin goals of providing campuses flexibility in the fund source used to meet UC's minimum commitment to undergraduate financial accessibility and improving financial accessibility for middle-income students. (pp. 53-55)

## **Funding Strategies**

No additional recommendations.

#### **Research Strategies**

- Recommendation 1: Collaborate with foundations, businesses, industries and the national labs to provide internships and fellowships for undergraduate and graduate students, and opportunities for industry leaders to work with UC students, providing new sources of student support and reducing the overall cost of education. (pp. 56-57)
- Recommendation 2: UC should adopt the following as a systemwide research mission statement:

Research is central to the University of California's mission to benefit California and society globally as we discover, interpret, apply and communicate new knowledge and innovations that ensure the quality education we provide our students, inspiring them to be leaders and contributors to the public good. (pp. 58-59)

 Recommendation 3: Create innovative practices to engage the public with the goals and results of research to strengthen links between the historical service mission of the university and its 21st-century research mission. (pp. 60-63)

- Recommendation 4: Maximize the UC library system's capacity to support the University's research mission by: enhancing and developing data curation techniques; extending systemwide acquisition and sharing of resources; expanding accessibility of physical and virtual library space; and promoting systemwide scholarly publishing initiatives. (pp. 64-66)
- Recommendation 5: Enhanced research paradigms are needed within UC:
  - Recommendation 5a: UC should build on its strength as a multi-campus system by improving the ability to create and support multi-campus and system-wide research programs and research training. (pp. 67-69)
  - Recommendation 5b: Each campus should ensure that its academic structures will maintain the quality of research within UC. (pp. 69-71)
- Recommendation 6: Implement mentoring, career, and professional development opportunities for graduate students, professional students, and postdoctoral researchers. (pp. 72-76)

## **WORKING GROUP RECOMMENDATION**

## Size and Shape

<u>Recommendation 6: Strategic academic planning in a systemwide context</u> – UCOP in conjunction with the Academic Senate should collaborate to develop an academic planning framework that takes into account campus priorities and resources in the context of systemwide resources. They should also work to make it easier for students to enroll in and obtain credit for courses offered throughout the UC system. In addition, UCOP and the Academic Senate should require greater curricular and programmatic collaboration across the system.

<u>Recommendation 6A: Require academic program review in a systemwide context</u> - In establishing new programs, degrees, and schools, both campus and systemwide strengths and resources should be given considerable weight. Current Academic Senate and administrative review procedures should be maintained and strengthened, and reviewing bodies should be given enough information about proposals from all campuses to be able to make decisions in the context of systemwide priorities and resources. Greater scrutiny should be given to implicit as well as explicit resource needs, and well-defined funding models should be established so that the commitment of state funds or non-state funds is clear and reasonable.

#### Rationale:

Too often, decisions to establish new programs have been made in isolation without a full understanding of the larger context of competing priorities and without an accurate sense of future resource needs and commitments. In times of expansion and growing resources, the University of California has supported the academic aspirations and entrepreneurial vision of its faculty and campuses. Although this remains a goal, and it is important that each campus be able to pursue its academic priorities and fulfill its full potential, a period of contracting resources requires rigorous review of new programs and an awareness of both future expenses and opportunity costs. Clear expectations should be established for any commitments of state funds. Campus proposals should consider how research or curricular resources on other campuses can be leveraged, and should focus on areas of excellence and core programmatic need. While campuses should initiate proposals for new programs, this effort can be facilitated by UCOP. The Health Sciences, which have worked collaboratively across campuses on such issues with the support of OP, could serve as a model for such endeavors.

<u>Recommendation 6B: Leverage the strength of the system for campus</u> <u>programming</u> - In reviewing their academic programs, campuses must review and assess their distinctive strengths and, where possible, seek to leverage similar programs and curricula at other UC campuses. External review of new programs must include such a systemwide perspective. New instructional technologies that allow distance learning and pedagogical collaborations, along with the streamlining of course transfer credit across campuses, can help campuses focus their resources on core programs and areas of teaching and research excellence. Seed funding and incentives should be provided systemwide to develop curricular consortia, especially in areas in which campuses have challenges in mounting individual programs.

## Rationale:

One of the hallmarks of the University of California is the opportunity for students to get a broad and deep liberal arts education in the context of a great research university. A liberal arts education is founded on a broad array of core areas of study; the interdisciplinary culture that UC seeks to foster depends on local juxtapositions and disciplinary dialogues that lead to collaboration and cross-fertilization. Overspecialization of campuses and curricula could deprive students of the broad liberal arts education that is needed to prepare them to be competitive in the workforce of the 21<sup>st</sup>century global economy, an economy that will depend on the skills of innovation, communication, and critical thinking that a liberal arts education provides. Overspecialization could also make UC campuses less hospitable to the interdisciplinary dialogue that leads to innovation and new disciplinary paradigms.

At the same time, UC campuses should undertake academic planning in the context of the entire university, taking into account the collective breadth and scope of the academic programs offered across the UC system. Multicampus Research Groups and Organized Research Units that bring together faculty and graduate students from multiple campuses thrive and enrich each individual campus. Although there are some efforts to coordinate and share curricula (for example, the UC Consortium for Language Learning and Teaching and the UC Washington Center) little has been done to collaborate on curriculum and pedagogy. Curricular consortia and new opportunities offered by instructional technology can permit campuses to focus their resources and priorities by sharing and leveraging resources on other campuses.

In a period of diminished resources, campuses need to focus on core areas and distinctive strengths. As new fields of study and new interdisciplinary approaches develop, the University cannot expand infinitely; choices need to be made about academic priorities in order to make resources available for new programs and new academic directions. Changing research methodologies, changing pedagogical models, changing student demographics, and changing academic priorities require that our academic institutions be agile and flexible and open to rethinking. UC campuses will have more options and will be more able to focus on strengths if they integrate systemwide perspectives and opportunities into strategic planning. Multi-campus and cross-campus course offerings might allow students to experience the full breadth of the UC system and allow campuses to develop areas of strength. Cross-campus efforts may focus on oversubscribed disciplines as well as small programs. Partnering and strategic alliances across departments and programs in the system, perhaps in northern- and southern-campus clusters, may allow campuses to maintain key instructional areas with limited resources. Campuses will have more options in

responding to shifting student demographics (in areas of both low enrollment and overenrollment) if they can take advantage of systemwide resources. While this recommendation focuses on undergraduate education, cross-campus coordination of graduate education opportunities should also be part of this systemwide conversation.

## <u>Recommendation 6C: Facilitate Cross-Campus Course Credit Transfer</u> – Revise Academic Senate Regulation 544 (enacted October 2004), which allows course credit transfer between UC campuses, to make it more user-friendly and more adaptable to UC's current needs.

Academic Senate (AS) Regulation 544 provides that UC students may enroll simultaneously in a course or courses at their home campus and at another UC campus. Although it is intended to help students take advantage of scholarship across the system, the regulation is drafted in a fashion to discourage its widespread use. For example, current considerations about accepting or rejecting course credit from another UC campus often do not recognize student needs. In addition, there is no guarantee that departments will accept courses for major requirements. Also, the regulation imposes significant burdens on the student: the student must inform the home campus in writing before enrolling in the course; if the student wants the course to satisfy a breadth or major requirement, she or he is responsible for determining whether or not the student must secure, in advance of enrollment, approval from the home campus academic unit. The hurdles to effecting cross-campus credit transfer essentially discourage students from taking advantage of this educational opportunity.

Regulation 544 should be revised to streamline cross-campus enrollment and to lessen the burden on the student to effect cross-campus credit transfer. In the revision of AS Regulation 544, adoption of the principles of AS Regulation 477 should be considered. Academic Senate Regulation 477 allows automatic community college course credit transfer for courses accepted by four or more UC campuses.<sup>1</sup> In addition to instituting automatic course credit transfer for courses in which students enroll, the University should consider extending automatic cross-campus course credit transfer to all lower-division general education courses and exploring similar treatment for upper-division courses.

## Rationale:

Collectively, the academic and research programs of the ten UC campuses are unparalleled in their breadth and scope, constituting one of the world's greatest centers of knowledge generation and dissemination. Student access to broader offerings can be achieved by expanding access to courses on other campuses and by making current regulations concerning cross-campus credit transfer more user-friendly and adaptable to current needs. Multi- and cross-campus course offerings would allow students to experience the full breadth of the UC system. The willingness to offer courses and accept credit across campuses allows for greater curricular breadth, more efficient

<sup>&</sup>lt;sup>1</sup> AS Regulation 477 allows for campuses to opt out of this automatic transfer of credit.

allocation of faculty and more creative avenues of study and teaching. It also facilitates time-to-degree. During the current fiscal crisis, reductions in the number of instructors and class offerings on individual campuses have often led to over-subscribed classes and longer delays in degree completion. Functioning more like a system, UC faculty and deans at all campuses can work together to make it easier for students to enjoy a multi-campus UC experience and obtain the necessary credit to graduate in a timely manner. In addition, faculty could benefit from newly imagined ways of interacting pedagogically with colleagues at other UC campuses. Such partnerships could lead to new forms of collaborative research among professors, but also among students and professors.

## Challenges:

- Reviewing agencies that assess new program proposals often see them in isolation and lack knowledge of larger contexts and competing priorities.
- Campus territoriality often interferes with cross-campus cooperation when it comes to acceptance of another campus' academic offerings.
- The absence of a systemwide academic calendar hinders efficient cross-campus course credit transfer.
- Lack of articulation and the difficulty of transfer credit across UC campuses make enrollment on other campuses difficult for students.
- There are few incentives for campuses to make program decisions in a systemwide context.
- UC lacks a common instructional technology infrastructure. There is evidence that distance learning is no less expensive and in many cases more expensive than traditional pedagogical models. Studies suggest that hybrid models, combining classroom and distance learning experiences, are the most successful. This will require extensive coordination, cooperation, and collaboration across multiple campuses.
- A new culture of UC cross-campus pedagogical partnerships would have to be promoted.

#### Impact on Access:

 Streamlining and facilitating the transfer of course credit across campuses can provide students with more opportunities to complete program requirements and improve completion rates, thus freeing up space for additional students. This will increase overall capacity at UC campuses and improve access to a UC education.

## Impact on Quality:

- Greater coordination among UC campuses and the development of new crosscampus pedagogical partnerships will provide students with a higher-quality educational experience.
- Better use of faculty and program resources will allow campuses to concentrate in areas of academic strength.
- Downsizing or elimination of programs could have impacts on the recruitment and retention of faculty in cognate programs; if graduate programs are no longer viable in some areas, it will be more difficult to recruit and retain some research faculty.

## Fiscal Implications:

- More campus curricular and program coordination should result in more efficient use of resources.
- Better leveraging the strengths on other campuses will free up resources for new programs.
- More realistic budget projections and clarity about future financial commitments will enable more informed decision making and avoid unexpected commitments in the future.
- The systemwide establishment of instructional technology required to allow students to enroll in courses across the UC system will require major investments.

## Next Steps for Implementation:

- Review the current revisions to the UC Compendium: Universitywide Review Processes for Academic Programs, Academic Units, & Research Units <u>http://www.universityofcalifornia.edu/senate/resources/Compendium.pdf</u> to ensure that proposed changes are consistent with this recommendation.
- UCOP and the Academic Senate should work together and coordinate implementation of the following:
  - Convene groups of select department chairs, program directors, and cognate Deans to explore curricular consortia at both the lower-division and upperdivision levels. Areas of low enrollment and areas of impacted enrollment in which student demand cannot be satisfied should be developed as pilot projects to test the possibilities of curricular and pedagogical collaboration. UCOP and individual campuses should provide seed funding to establish incentives for both departments and faculty.

- Disseminate best practices in curricular planning across the campuses (e.g., UCLA's Challenge 45 which seeks to streamline major requirements).
- Disseminate examples of successful curricular coordination and collaboration (such as the Consortium for Language Learning and Teaching).
- Ask campuses to incorporate systemwide perspectives into strategic planning, new programs proposals, and program review protocols.
- Establish better coordination among new program proposals and establish timetables so reviewing agencies tasked with assessing such proposals can evaluate them in a coherent context, allowing for comparative judgments and more informed decision making.
- Ask the appropriate Academic Senate committees to revise AS Regulation 544.

#### Other Options Considered:

None

## **WORKING GROUP RECOMMENDATION**

## Size and Shape

<u>Recommendation 7: Campus Funding</u> – Allocate undergraduate financial aid based on student need; maintain the undergraduate student self-help component of financial aid at the same level across all campuses. Endorse the proposal to fund the Office of the President by an assessment on campus resources based on all campus revenue. Change the funding model for the campuses by allowing campuses to retain the education fee increases generated by their own students and by readjusting the base funding formulas for the campuses. Do not automatically apply education fee increases to academic graduate students.

<u>Recommendation 7A – Undergraduate Student Financial Aid</u>. The Size & Shape Working Group endorses the current model of distribution of undergraduate financial aid under the University Student Aid Program (USAP), which allocates financial aid based on student need, and which seeks to achieve the same self-help level for student aid at every UC campus. Under this model, the distribution of financial aid should be undertaken so as to keep the self-help level consistent across all campuses and thereby maintain a level playing field for all UC students.

#### Rationale:

The practice of distributing undergraduate financial aid based on need is essential for system like UC, which has systemwide eligibility and the potential to redirect student applicants to other campuses. As a system, UC should ensure that all campuses are equally affordable for students with financial aid needs.

**Recommendation 7B – Funding the Office of the President.** The Size & Shape Working Group proposes that the central operations of the Office of the President of the UC system, including Presidential and special initiatives and programs to implement system-wide goals and priorities, be funded through a direct assessment on all campus revenue streams.<sup>1</sup> Such assessments would be adjusted periodically, and would reflect changes in the needs of the central administration, as well as changes in campus revenue streams. Campuses may pay this assessment using any funds available to them.

#### Rationale:

The Office of the President provides services to all portions of the campuses. Funding central operations and priorities by an overall assessment of campus funding streams provides a more transparent, equitable, and predictable approach to funding of central activities and Presidential initiatives.

<sup>&</sup>lt;sup>1</sup> For this to take effect, there needs to be agreement on a definition of "campus revenue streams" that equitably accounts for the fact that similar functions may generate revenue in different ways on the various campuses. This is particularly true of auxiliary enterprises like bookstores or certain hospital functions that may be run by affiliated entities on some campuses but may constitute part of the UC core on other campuses.

<u>Recommendation 7C – Funding the Campuses</u>. The Office of the President, in consultation with the campuses, should review and revise current system-wide funding formulas in an open and transparent way in order to attain a clear and equitable distribution of funds with the following goals:

## Immediate Implementation:

 Allow campuses to retain all new revenue generated by the campuses, including education fee increases. All such revenue streams would be subject to the assessment described in Recommendation 7B to fund the central operations of the Office of the President of the UC system.

#### Longer term Implementation:

- In the longer term (e.g., within 2 years), pursue an equitable and transparent readjustment of base funding formulas through a combination of immediate actions and gradual changes that would ensure a realistic and appropriate transitional period.
  - The goal of any base funding readjustment must be to support excellence on all campuses while maintaining strengths and protecting quality.
  - There are many factors that should be considered when readjusting the base funding of the campuses, including the total number of students being educated by the campus, the distinctive missions of the campuses, and the number of academic doctoral students being trained on the campus.
  - Because the student composition and the roles of campuses change over time, the base budgets of the campuses should be regularly reassessed and readjusted on an ongoing regular basis, perhaps every five years.

## Rationale:

The present system by which the campuses are centrally funding is completely lacking in transparency. There is incomplete understanding of how, over time, the base budgets of the campuses have evolved. This has created a complex system that is opaque and inscrutable. Pursuing review and revision of current system-wide funding formulas in an open and transparent way will enable the California public, the Legislature, the media, and the University as a whole to fully understand the critical choices we all face. In addition, it is just as appropriate for the system to reevaluate how it allocates money to the campuses as it is for the campuses to reconsider the funding of each unit on campus, as they are now doing.

• Traditionally the education fee has been distributed back to the campuses in proportion to their base budgets, largely because these fees were seen as a replacement for state funding. However, it is not equitable for students to pay an educational fee on some campuses and not receive the full benefit of their fees.

In addition, all other revenue generated by campuses remain on the campus (e.g. overhead, nonresident tuition, registration fees), and it seems equitable to do the same with education fees. Any significant adverse effects on a campus from this change should be mitigated, at least on a temporary basis, by a special allocation from the Office of the President.

• For historical reasons no longer understood or applicable to the present, there are considerable disparities among the general campuses regarding general funding per student, Given the complexity and opaqueness of the current model, it is appropriate to revisit how the base should be established. The Size and Shape group feels strongly that the great value of academic doctoral students to UC's mission and to the state's economy dictates that a campus's success in training academic doctoral students should be one key factor in determining the campus base budget, along with the total number of students being educated on the campus. Readjusting the campus base budgets will not be an easy task, but it is essential if the funding of the campuses is to be placed on a rational and transparent basis.

**Recommendation 7D – Graduate Student Funding and Fees.** The Size & Shape Working Group recommends that education fee increases for undergraduates should not automatically translate into fee increases for graduate students. The importance of graduate and, in particular, academic doctoral students to the University's mission and to the state outweighs the financial gain that raising graduate student fees produces. The graduate fee structure should be distinguished from the undergraduate fee structure.

The Size & Shape Working Group recommends that students in free-standing terminal Masters' degree programs be funded in a manner similar to upper-division undergraduate students: California residents pay resident tuition and are eligible for financial aid; nonresident pay out-of-state fees, thereby generating additional revenue for the campus that offers the degree.

#### Rationale:

Maintaining the competitiveness of UC's graduate programs (especially academic doctoral programs) is essential to the University's mission and to the future of California, creating the foundation to retain our global advantage in cutting-edge technology. The importance of academic doctoral education to UC and to the state cannot be overstated. Academic doctoral students are the core for advanced research, for research dollars, and for the undergraduate teaching force. Under the current fee structure, it is often less expensive for a faculty member to employ a postdoctoral fellow than a graduate student, and less expensive for a department to hire a lecturer than a graduate teaching assistant. Such a funding model is bound to severely hurt graduate education.

#### Impact on Access:

Maintaining the same self-help level across all campuses assures that students will have access to UC quality education at any campus they attend. Readjusting the

budgets of the campuses in a fair and transparent manner assures that all UC campuses can continue to offer the same excellent educational opportunity to all students.

#### Impact on Quality:

Assuring a transparent and sensible system of budgeting can be done in such a way so as to support excellence on all campuses while maintaining strengths and protecting quality

#### Fiscal Implications:

With the exception of limiting academic graduate student fee increases, there are few fiscal implications for the system as a whole. Restricting future graduate student fee increases would similarly restrict the support of graduate education by extramural fund sources, mainly granting agencies. These proposals would, however, potentially shift money around within the system.

#### Challenges:

Because it is difficult to understand the current budget within the university, any change to a more equitable and transparent system will necessarily entail uncertainty and resistance.

#### Next Steps for Implementation:

Immediately implement the new funding model for central operations of the Office of the President and return increases in education fees to the campuses that generate them, while appropriately backfilling loss of those fees with other revenues. Begin the process for rebasing the budgets of the campuses.

#### Other Options:

- The current funding model for the Office of the President and for the campuses is always an option. However, this model is neither transparent nor well understood in terms of its policy origins.
- The model that allows all campus to retain all revenues that they generate (including revenues currently regarded as part of the base budget). This would not include state General Funds, which the President could then distribute for University-wide programs, for supplementing campus operations, and for Presidential initiatives. A significant fraction of state General Funds would be allocated in order to provide equity in student financial aid. Several members of the Size and Shape working group believe that the University of California should move toward this funding model as rapidly as possible.

## **WORKING GROUP RECOMMENDATION**

## Size and Shape

<u>Recommendation 8: Enrollment</u> – Recommit to the California Master Plan for Higher Education standard of eligibility for admission of twelve and a half percent of California high school graduates to the extent resident applicants are funded by the state; increase nonresident admissions to meet campus capacity; reaffirm the 60:40 ratio of upper division to lower division; move towards a 1:2 ratio of community college transfers to freshmen if the state is willing to increase state funding for upper-division instruction; consider additional measures to address excess time to degree; maintain or increase graduate student enrollment; support self-supporting terminal Master's degrees; encourage studies of UC professional schools modeled on the recent UC Health Affairs report.

 <u>Master Plan</u>. The California Master Plan for Higher Education articulates the state's commitment to provide a college education to every qualified resident. The Size & Shape Working Group recommends that the University of California reaffirm its commitment to the vision and principles of the Master Plan and to its eligibility standard of the top one-eighth (12.5%) of California high school graduates,<sup>1</sup> so long as state funding commitments are met.

<u>Rationale</u>: The California Master Plan establishes a framework for providing a college education to every qualified resident by defining the roles of the three public higher education systems, the California Community Colleges, the California State University, and the University of California. Unless and until the Master Plan undergoes modification, the Size & Shape Working Group recommends remaining committed to its principles.

2. <u>Realignment of Resident and Nonresident Enrollment</u>. The decrease in state funding for public higher education has led to the admission at UC campuses of California residents for whom no state funding is forthcoming. Currently UC has approximately 15,000 unfunded resident students. The Size & Shape Working

<sup>&</sup>lt;sup>1</sup> The University's Entitled to Review (ETR) policy takes effect for students applying for freshman admission in Fall 2012. The new policy would define the top 12.5 percent differently than in the past. Students who fall in either the top nine percent in the state or the top nine percent of their class—together representing just over ten percent of the high school graduating class—would be guaranteed admission as they are now. The rest of the admissions spaces needed to meet the Master Plan target and the state's access goals would be admitted from the larger ETR pool. The Regents' item adopting this policy stated: "The Eligibility Reform proposal is not expected to have any direct impact on the *number* of students the University enrolls. UC's short- and long-term enrollment plans and targets are determined based on general demographic patterns, the access goals of the state, state and University financial resources available to support academic programs and campus services, and campus physical capacity and planning." Thus, the Size and Shape Working Group's recommendation should be applied to be consistent with this understanding – that UC work with the state to ensure that adequate funding be provided consistent with the twelve and a half percent standard in the Master Plan, as defined in University policy.

Group recommends that, unless and until state funding is restored, UC resident enrollment be decreased to match current state-funded levels, and that nonresident enrollment be increased to generate the funds to appropriately educate all students within UC in a way that is consistent with the Master Plan. UC must remain mindful of the education of California students and remain committed to access for California residents. Because each campus shares this responsibility for educating California residents, the Size & Shape Working Group recommends the goal of an equitable allocation of non-resident students among the campuses within the system. For further details, see Size & Shape Working Group Recommendation 1.

<u>Rationale:</u> With a decrease in resident enrollment stemming from reduced state funding, enrollment of a greater number of nonresident students will preserve the capacity of campuses to accommodate enrollment demand, including future demand, if and when state funding is restored. In addition, re-aligning resident to nonresident enrollment to match state funding will ease campus budgets. As stated in Recommendation 1, nonresident admission should be at or above the median quality of all undergraduate students accepted to a particular UC campus based on a comprehensive review of the academic record.

3. <u>Freshmen-Transfer Ratio</u>. Under the Master Plan, UC is obligated to maintain a ratio of sixty percent upper-division to forty percent lower-division students in order to preserve spaces for community college transfer students. The Size & Shape Working Group recommends that this ratio be maintained. In addition, the Working Group recommends that UC, as it improves the transfer function, pursue the goal of seeking to reach the ratio of one California resident community college transfer student for every two California resident freshmen, with two conditions. First, given that the cost of instruction at the upper division is greater than at the lower division, an assessment of the additional cost must be made. Second, the state must compensate the University for that additional cost. Since the transfer function poses a financial benefit to both student and state by decreasing the overall cost of achieving a UC undergraduate degree, the Size & Shape Working Group recommends that the University negotiate with the state to ensure that marginal cost calculations reflect the higher cost of upper-division instruction

<u>Rationale:</u> Because many freshmen move to the upper division in less than two years and many students take more than four years to graduate, UC reaches the 60:40 ratio without actually admitting one community college student for every two freshmen. Currently the ratio is one community college student for every 2.4 freshmen. The cost of instruction at the upper division is higher because of smaller class sizes and a higher proportion of ladder-rank faculty instructors. Therefore, the reality of the cost of upper-division instruction as compared to lower-division instruction should be part of negotiations with the state on per-student funding.

4. Excess Time-to-Degree. Generally an undergraduate degree should be achievable in four academic years. Many students, however, take longer than four years, some as many as six years, often for reasons beyond their control, such as the unavailability of required courses. The Size & Shape Working Group recognizes that it is the responsibility of UC campuses and departments to ensure that required courses are made available to enable students to complete their degrees in a timely manner. We recommend that departments put in place enrollment management practices that provide students the opportunity to graduate without undue delay. In addition, each campus should establish regulations addressing excess time-to-degree that balance a combination of units and years. Campuses should take into account the demands of employment for those students who must work while in school and legitimate academic reasons for accumulating excess units (e.g. double majors). Adoption of the multi-year fee schedule recommended by the Access & Affordability Working Group (Recommendation 5) might well serve as a financial incentive for a timely completion of degrees. For example, according to this multi-year fee schedule for incoming cohorts of students, a sixth-year student might be charged the higher fees scheduled for currently enrolled fifth-year students.

<u>Rationale:</u> The cost of excess time-to-degree to both UC and UC students is significant. On one hand, the cost students must pay for their education is higher. On the other hand, students who delay graduation occupy space that could be filled by new students. In addition, the cost of upper-division instruction is increased by lengthened stays of juniors and seniors. Where excess time-to-degree stems from unavailability of courses, campuses and departments must implement measures to make sure that needed courses are available. Where excess time-to-degree stems from students' responsibilities, incentives to graduation should be considered, such as those recommended by the Access & Accessibility Working Group in Recommendation 5.

5. <u>Academic Graduate Student Enrollment</u> - The Size and Shape Working Group recommends that at a minimum graduate student enrollment be maintained and if possible increased. The Working Group considers the education of graduate students, and in particular academic doctoral students, as one of the University of California's principal obligations. The education of academic doctoral students is critical to UC's teaching, research, and service mission, and to the economic and cultural development of the state. The state needs to be reminded of the enormous beneficial economic impact of graduate education on California.

The Size & Shape Working Group notes that some disciplines currently have available faculty and research lab capacity, suggesting that additional graduate students could be accommodated without new investments in faculty and laboratories. Funding for academic doctoral students would thus be leveraged effectively.

The Working Group also recognizes that the relationship between graduate education and job placement is increasingly important. We therefore recommend consideration of a process whereby departments are rewarded for successful placement of their graduate students.

<u>Rationale:</u> Just as UC undergraduate degree-holders contribute to the state's workforce following graduation, so too UC holders of advanced academic degrees contribute to California by pursuing post-doctoral careers in the state. In the area of teaching alone, graduates of UC's academic doctoral programs fill roughly a quarter of teaching positions at the University of California and in the California State University system. Such increases would have the benefit of alleviating the teaching pressure on over-enrolled undergraduate classes, as graduate students play an important role in UC's instructional mission. Indeed, recent reductions in graduate student instructional support due to budget constraints have aggravated the challenge of teaching over-enrolled courses at the undergraduate level. The quality of the undergraduate educational experience at UC would be greatly enhanced by an increase in graduate student numbers. The quality of the graduate educational experience, and the competitiveness of UC graduates in the academic job market, is increased by access to teaching opportunities.

6. <u>Terminal Masters</u>. The Size & Shape Working Group is in favor of expanding self-supporting Master's programs.

<u>Rationale:</u> The terminal Masters is slightly anomalous at UC, where graduate students who are not pursuing professional degrees are usually pursuing doctorates. Self-supporting Master's programs are beneficial both to the UC mission and to state economic needs.

7. <u>Professional Enrollment</u>. The Size & Shape Working Group endorses the recent UC Office of Health Affairs report *A Compelling Case for Growth* <u>http://www.ucop.edu/hss/documents/rprt\_jan2007.pdf</u> and encourages UC to make comparable studies in other professional disciplines that take into account both qualitative and quantitative needs.

<u>Rationale:</u> Although the various professional schools have different concerns and needs, the Health Affairs reports represents a best practices model that can be referred to as a standard for professional education. It has also proved to be beneficial to state legislators by providing insight into UC's health sciences activities.

#### Impact on Access:

• Recommitment to the Master Plan and its eligibility standard, and improving the community college transfer ratio will promote access and diversity at UC's campuses.

- By addressing excess time-to-degree, UC will be able to accommodate more students, more students will have access to a UC education, and students' education will be less costly.
- Under the Master Plan, the University of California bears the responsibility of providing an education for academic Ph.D. students as part of its public mission. The Size and Shape Working Group reasserts that this is a primary *raison d'être* of the UC system.

## Impact on Quality:

- The enrollment of a student body that encompasses the broad diversity of cultural, racial, geographic, and socioeconomic backgrounds characteristic of California enhances the educational experience of all students.
- International and non-resident students will contribute to the intellectual, social and cultural diversity of a campus and the educational experience of California resident students.
- An increase in academic doctoral student enrollment will improve the quality of undergraduate education: more graduate students means more instructors for and greater availability of undergraduate level classes.

## Fiscal Implications:

- An increase in nonresident enrollment will bring additional revenue to the campuses.
- The proposal to account for increased costs for upper-division instruction in per-student state funding aims to improve revenue.
- The proposal to increase academic doctoral enrollment presents fiscal challenges. These have been addressed in detail in the Access & Affordability Working Group's Recommendation 3: Reaffirm the University's commitment to fulfilling graduate education's role in serving UC's research enterprise, UC's teaching mission, and the diverse knowledge and workforce demands of the state and beyond.

#### Challenges:

- A greater reliance on non-resident students could cause state support to decrease even more if it is incorrectly perceived that UC will serve fewer Californians.
- Increasing academic doctoral enrollment is constrained by the fiscal implications outlined in the Access & Affordability Working Group's Recommendation 3.

## Next Steps for Implementation:

• Incorporate the above recommendations into systemwide discussions concerning enrollment.

## Other Options Considered:

• The Size and Shape Working Group discussed the possibility of significantly reducing the size of the student body. This alternative was rejected for two reasons. First, we wish to maintain the possibility of returning to Master Plan levels of enrollment if state funding is restored. Second, a reduction in the size of the student body, along with the concomitant reduction in fees, would impose severe financial constraints on UC's ability to pay its ongoing fixed costs.

## **WORKING GROUP RECOMMENDATION**

## **Education and Curriculum**

Recommendation 5: Direct the Academic Planning Council at the Office of the President, by spring, 2011, to:

- Develop a position statement that makes it clear that any changes made to education and curriculum at the University of California should preserve or enhance educational quality.
- Develop and endorse a framework document that identifies general guidelines and parameters for educational quality at UC, and a set of measures that effectively describe factors related to quality. Those measures should be incorporated into a periodic systemwide assessment of quality. Measures of access and affordability should be included as components of quality in the performance of UC's educational mission.

Additionally, the Commission on the Future should endorse the use of outcome assessment as described by the UC Senate Undergraduate Educational Effectiveness Task Force<sup>1</sup> in the report entitled "UC Way to Educational Effectiveness" as a means of developing information showing success in meeting learning objectives in UC coursework.

The Education and Curriculum Working Group believes that preserving or enhancing the quality of UC undergraduate, graduate, and professional education should be a top priority as changes are introduced that might affect the educational process, including ones recommended by the Education and Curriculum work group. We will provide some suggestions and comments here for how educational quality might be described and tracked as it relates to undergraduate education. Further deliberation is needed to suggest parallel descriptions for quality at the graduate and professional levels, and we recommend that plans be made for further study in that area.

Educational quality derives primarily from the background, expertise and vision of faculty and the achievements of students in the programs. Within UC, educational quality is grounded in the research university environment in which learning occurs. In maintaining educational quality at the highest level possible, priority should be given to those aspects of the curriculum and delivery system that best incorporate the unique attributes UC brings to the degree or program. It should be recognized that there are different pathways that lead to a quality UC degree and that the relative importance and relevance of different educational components will best be identified and articulated by the faculty in the local context of their general goals and disciplinary approaches. Faculty should initiate or continue the process of establishing course and program learning objectives for their individuals programs and develop assessment processes to demonstrate directly our ability to maintain quality and achieve learning goals.

An example description of factors related to quality is provided in <u>Appendix A</u> entitled "Characteristics of Educational Quality at the University of California." We recommend that UC identify a set of measures that relate to educational quality at UC that can be monitored over time as a means of assessing how quality might change in the future as Commission on the

<sup>&</sup>lt;sup>1</sup> <u>http://www.universityofcalifornia.edu/senate/reports/hp2lp\_ueetf\_2.10.10.pdf</u>

Future recommendations are implemented. <u>Appendix B</u> presents a list of areas recommended for the development of specific measures, with examples geared in this document towards the assessment of undergraduate education that will provide a focused assessment of institutional quality, including related measures of access and affordability. We propose that the Academic Planning council initiate a process to finalize a set of measures to be tracked over time, initiate the development of a similar set of measures for the assessment of graduate and professional education, and that Academic Planning initiate a periodic report on quality using these measures

<u>Preliminary action steps</u>: Using the Academic Planning Council or some other appropriate process:

• <u>Identify general guidelines for the definition and parameters of education quality at UC.</u> An exemplar reference is provided in the background document entitled "Characteristics of Educational Quality at the University of California." <u>See Appendix A.</u>

• Identify measures that effectively describe factors related to educational quality. Existing reports and surveys -- such as the Accountability Report, UCUES, and the TIE report -have relevant data that can measure quality. A synthesis of this information showing trends should be a sub-report on educational quality as part of the UC Accountability Report.<sup>2</sup> <u>See Appendix</u> <u>B for examples of factors related to undergraduate quality</u>. Develop similar measures of educational quality directed towards graduate and professional education.

• <u>Endorse the general concept put forward in the report by the Undergraduate Educational</u> <u>Effectiveness Task Force</u><sup>3</sup> entitled "UC Way to Educational Effectiveness" that

responsibility for assessing student learning resides with the faculty, and that it should be discipline specific and locally (campus) defined, with Senate oversight and participation.

• Every department and program should establish a process by which learning objectives are identified and outcome assessment is obtained and used as a basis for improving learning.

• Ensure a periodic process is in place that will describe and evaluate the longer term impacts of a UC undergraduate education. Academic Planning at UCOP has been working on implementing a survey of alumni that superseded the proposed activity of a special Academic Planning Council task force appointed back in fall, 2008. The outcome of that project could satisfy this request.

## Rationale:

• <u>Base reference of quality needed to monitor changes</u>. While educational quality is difficult to define and quantify, efforts to maintain quality require baseline reference indicators. The effects of possible changes to the University's structure or operation can be then evaluated.

• The determinants of the desired quality for any degree or program at UC will come from

<sup>&</sup>lt;sup>2</sup> <u>http://www.universityofcalifornia.edu/accountability/</u>

the faculty responsible for the curriculum and teaching of the degree.

• <u>The quality of education at UC is manifested in the final outcome</u> -- the background, abilities and accomplishments of graduates. This is achieved through the integrative effects of the variety of the students' educational experiences. Thus, there are multiple pathways to achieve the final standard of quality.

#### Impact on Access:

• Maintaining top quality faculty and educational programs will ensure that the most qualified and capable students will continue to enroll at UC.

#### Impact on Quality:

• <u>Monitor and evaluate quality</u>. By identifying factors and measures related to quality we will have a reference against which any changes to the educational system can be evaluated.

#### Fiscal Implications:

• During the current fiscal challenges, priority should be assigned to curricular and course delivery aspects that faculty believe are the most important contributors to quality in order to maintain the highest level of quality. If changes that may affect quality are made due to budgetary reasons, there should be an effort to minimize the effect on education quality for the student.

#### Challenges:

- Educational quality is difficult to define and quantify.
- A general perspective on educational quality provides little guidance for evaluating quality.
- Key contributors of quality will vary considerably between different educational programs, making it difficult to capture all perspectives in concise statements.

## **APPENDIX A**

## Characteristics of Educational Quality at the University of California

**Fundamental Basis for a UC Quality Education.** The quality of education at the University of California is fundamentally derived from two key components: the background and expertise of the faculty and students involved; and the rich research-based environment inherent in the system of ten top-tier public land-grant research institutions.

- The vision of what constitutes desired and acceptable quality for any given degree or program at UC will ultimately come from the faculty responsible for the curriculum and teaching in each degree program.
- The measures of success will ultimately derive from the achievements of students in the program.

<u>Characteristics of UC Quality Courses, Majors and Programs</u>. The following are features that contribute to the ability of UC to deliver a university education that meets a high standard of quality in terms of content and delivery. Courses, majors and programs that define UC quality are ones that:

- •...are developed by UC faculty with quality assurance monitored through the UC Academic Senate course and program review process.
- •...are delivered under the direction of UC ladder faculty, and include substantial contributions from lecturers, graduate students, and other academic positions filled by individuals who understand and can communicate the unique perspective of the UC research university environment.
- •... include appropriate and substantive student-instructor and student-student interaction.
- •...provide a framework by which students achieve objective standards of knowledge and competence appropriate to the field of study or profession.
- •...empower students with skills in the acquisition, assimilation, and synthesis of knowledge that will allow nimble adaptation to the ever-changing intellectual environment, and foster intellectual independence, creativity, leadership, and entrepreneurship.
- •...develop interpersonal skills that will contribute to success through collaboration.
- ...develop sensitivity to the diversity of domestic and international cultures that will enhance students' capacity to operate within and advance American and global society".
- •...provide ample opportunity for closely-mentored relationships with faculty and other University-affiliated personnel that allow students to pursue independent research, creative activity, or service to society related to their field of study.
- •...foster the abilities to interpret and organize information critically, analytically, effectively and transparently, and to maintain intellectual integrity and high ethical standards and intellectual honesty.
- •... can contribute indirectly to student awareness of, and involvement in, the perspective unique to the culture of a public research university, with special insight for how that perspective enriches their disciplinary and general education.
- ... support achievement of the basic University of California missions related to teaching, research and public service.

**Ongoing Assessment and Oversight of Quality.** To ensure the effectiveness of UC courses, majors and programs are evaluated by a regular review process, and this process is another component leading to a quality education at UC. Key elements to this process are programs and majors that:

•...include regular evaluation of faculty teaching by students that is a part of the evaluation process for faculty as they advance within the University.

- •... are evaluated regularly through self-assessment followed by an internal and external administrative and peer faculty review process that evaluates the "fitness for purpose" of the content and delivery of instruction.
- •...include a course and program learning assessment process in which faculty develop learning goals, map goals to the curriculum, and assess majors' mastery of the learning goals. Learning goals include skills related to critical thinking, analytical reasoning, written communication, and other discipline-based skills.

<u>Context Contributing to UC Quality</u>. The unique environment created by UC's system of ten top-tier public land-grand research universities contributes to the overall UC educational quality. Important aspects of this environment include the ability to.....

- •...provide students with research opportunities closely mentored by UC faculty.
- •...take advantage of the unique benefits of UC's 10-campus system through cooperation, collaboration, differentiation, administration and specialization among the campuses.
- •...provide a civil and inclusive multicultural environment that conveys and helps to develop the most current knowledge, theories, ideas and perspectives.
- ... provide insights and experiences that are based in both research and practice.
- ...take advantage of the important social, cultural and intellectual contributions enabled by having a diverse population of students from a variety of underrepresented populations.

Expected Outcomes of a UC Education. Graduates of UC will have the ability to.....

- •...contribute to society in ways that encourage independent thinking and enhance leadership potential.
- •...make significant and relevant contributions to issues important to California, the nation and the world.
- •...enable them to improve the quality of their lives and the quality of life of others.
- •...facilitate meaningful engagement with others in diverse vocational, living and social environments.
- •...make use of the scope and depth of the liberal-arts education inherent to a public land grant research university.

## **APPENDIX B**

## **Measures Related to Educational Quality**

This document lists areas recommended for development of specific measures that will provide a focused assessment of institutional quality, including related measures of access and affordability. Examples are provided, but these measures should be evaluated for appropriateness and other measures also considered. The intention is that measures related to quality would be monitored over time with periodic analysis of how well quality is being maintained or improved, and with identification of areas where more attention might be warranted. The examples shown here would provide data points that could be tracked from year to year. Most of what is shown here focuses on UC systemwide. Similar data for each campus would also be relevant. While this list primarily addresses undergraduate quality, it is suggested that it be expanded to include other measures of graduate and professional student educational quality.

## **B1. Measures of Student Educational Experiences That Contribute to Educational** <u>Quality</u>

Student Educational Experience

- Degree of engagement of students in research and creative activity
- Engagement with faculty and collaborative learning
- Use of different types of learning activities; Academic effort
- Self-reported satisfaction and gains in academic and life skills
- Academic availability (fraction that could not enroll in major of their choice, fraction unable to find or enroll in course offering that they're interested in, etc.)
- Degree to which external factors (job responsibilities, preparation, state of mind, etc.) interfered with academic success; Academic risk behaviors
- Availability of educational enrichments

## **B2. Measures of Access, Affordability and Achievement that Contribute To** <u>Educational Quality</u>

Access & Entering Student Quality

- Entering class quality (SAT scores, GPA, merit scholars, etc?)
- Underrepresented populations
- Instructional profile (student-to-faculty ratio; student credit hours by level and faculty appointment, etc.)

#### Affordability

- Student Expenses and Funding Sources
- Debt burden upon graduation

Measures of Undergraduate Student Success

- Bachelor degree completion rates and timeliness
- Frequency and nature of post-baccalaureate study
- Number of degrees awarded

## **Student Educational Experience**

## Degree of engagement of students in research and creative activity

The 1960 California Master Plan designated the University of California as the state's primary public research university. Since research is fundamental to UC and to its faculty, it is appropriate that opportunities for undergraduate research should be a contributor to the quality of the undergraduate experience (and perhaps even more important for graduate education).

The item below is from the 2008 UCUES survey of senior students and shows that direct involvement with research and creative activities is a substantial part of the undergraduate educational experience for many students. This is only one of many ways that research permeates undergraduate education. UC should strive to maintain levels of participation such as the 49% of seniors who had done an independent research project and the 53% of seniors who had done any research or creative project with faculty.



Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_participationinresearch.pdf

## **Engagement with Faculty and Collaborative Learning**

The base for educational quality at UC comes from the quality of the faculty and their ability to infuse state-of-the-art knowledge and critical thinking into the classroom environment and other educational experiences. Equally important to educational quality is the caliber of students admitted to UC and the contributions made to the learning environment by highly skilled and motivated students working collaboratively. In a public research university where some classes can be very large, special effort is needed to assure there are adequate opportunities for students to interact with faculty and with other students.

Part of the quality of education comes from individual or small group interactions with faculty as part of the learning environment. The markers in the UCUES document below provide benchmarks against which future comparisons can be made. A goal for the future is that each of these levels of involvement in the "often" and "occasionally" levels be maintained or increased in the future.



Engagement with Faculty Source: UCUES Core 2008

Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf

Equally important is having students learn from and motivate each other to higher levels of attainment. Increases in the "often" and "occasionally" categories of the collaborative learning UCUES document would be a goal for the future.



Helped classmate understand material better Worked with group of students outside of class

#### Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf

## Use of Different Types of Learning Activities; Academic Effort

Developing abilities to evaluate and organize information critically, creatively and analytically is a goal of higher education. There are a variety of learning modes that contribute to enhancing student abilities in these areas. The following UCUES data illustrates the prevalence of some of these different types of learning activities, and tracking the use of such learning methods over time can provide another view of how changes to factors related to quality might change.



Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_increasedacademiceffort.pdf

#### Self-reported satisfaction and gains in academic and life skills

Student perceptions about their undergraduate experience and the changes they see in their skills and abilities can help to demonstrate the beneficial outcomes of a UC education. Tracking these over time will help show how UC is able to maintain desired outcomes over time. Additional measures related to the availability of opportunities for students to learn life skills learning, such as the number of student organizations available, or the availability of counselors or student wellness officers, could be useful.



#### Self-Reported Gains in Academic & Life Skills (for Seniors) (pt.1) Source: UCUES Core 2008



Self-Reported Gains in Academic & Life Skills (for Seniors) (pt. 2) Source: UCUES Core 2008



Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf

Academic availability (fraction that could not enroll in major of their choice, fraction unable to find or enroll in course offering that they're interested in, etc.)

The quality of a UC education will depend on how available courses are that are needed for GE and major requirements, and how accessible faculty and TA's are for assistance, clarification, and more indepth academic exploration of ideas. Tracking this over time will help identify any changes associated with the increasingly difficult budgetary situation.



Source: UCUES 2008;

http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf

## <u>Degree to which external factors (job responsibilities, preparation, state of mind, etc.) interfered</u> <u>with academic success</u>

A student's ability to get the most out of their educational experiences will depend on the environment within which they learn and the variety of challenges that daily living and family life brings. Offices of Student Affairs work to provide an environment conducive to learning and with supporting services that help students deal with challenges outside the direct learning experience. Monitoring student perceptions of their educational environment and the issues that distract them from being able to fully take advantage of their educational opportunities can provide insight into factors that may peripherally affect the quality of their education. The more they adopt risky academic behaviors the greater they jeopardize getting the most out of their classes. Since any adverse effects of campus climate could be a further distraction from academic endeavors, it would also be useful to identify measures related to student perceptions of campus climate.



#### Source: UCUES 2008;

<u>http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf</u> <u>http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_academicriskbehaviors.pdf</u>

## **Availability of Educational Enrichments:**

Learning can be enhanced and extended by a variety of educational experiences outside the classroom or laboratory and the availability of those opportunities both add to the overall quality of the UC experience and help to instill a sense of obligation to society to utilize an education for the benefit of others. Financial pressures make it more difficult for universities to provide the support structure to enable student access to these types of activities, and tracking student involvement in activities that expand their academic programs can help judge how these beneficial experiences change over time.



Source: UCUES 2008; <u>http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf</u>
# **B2. Measures of Access, Affordability and Achievement that** <u>Contribute To Educational Quality of the Institution</u>

Most of the measures shown below are regularly collected as a part of UC's accountability, TIE, or regents reports. The information excerpted here is closely related to either the specific quality of student education or more generally to the overall quality of the educational effort of the University as a land-grant public institution. This is part of the goal both to make a UC education available to a diverse population of eligible students and to enrich the educational environment by infusing perspectives from all walks of life. This will help us achieve a goal of fostering civic responsibility as one desired outcome of a college degree.

# Access & Entering Student Quality

# Entering class quality (SAT scores, GPA, merit scholars, etc?)

A major contributor to the quality of UC graduates is the caliber of entering freshmen and transfer students. It is essential to maintain the highest possible level of academic preparation and achievement in admitted students. SAT scores of entering freshmen and community college GPA's of transfer students provide one insight into this quality that can be tracked over time.

#### Average SAT Scores for Entering Freshmen, Fall 1994 to 2008 Universitywide Old SAT New SAT \_1174 1167\_

Indicator 3.10

Indicator 3.7

Average College GPA for Entering Upper-Division California Community College Transfer Students, Fall 1994 to 2008



Source: UC Annual Accountability Report, May09 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf

# **Under-represented populations**

While UC has an overall goal of access, affordability and quality, one aspect of the quality of a UC education comes from diverse culture provided to a wide array of underrepresented populations spread across all socioeconomic levels. A diverse student body enhances the quality of education by infusing perspectives and experiences from students of all walks of life in California and beyond, enriching and contributing to the environment for undergraduation education.

Tracking the race/ethnicity of entering freshmen in relation to high school graduate proportions is one indication of how successful UC is at meeting enrollment goals. It is desirable that UC reduce the enrollment gap and provide access to students from groups whose presence in the top 12.5 percent of the state's high school graduates is disproportionately small compared to their presence in the general population. Monitoring success in attracting students from underrepresented groups will show how well UC meets that goal.





Source: UC Annual Accountability Report, May 2009 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf Tracking the race/ethnicity of entering freshmen and transfer students will help show how well UC is meeting its access goals.





#### Indicator 3.5

Upper-Division California Community College Transfer Applicants, Admits and Enrollees by Race/Ethnicity, Fall 1994 to 2008



Source: UCOP Corporate Student Systems data reported in StatFinder.

#### Source: UC Annual Accountability Report, May09

http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf

The percentage of undergraduate students with Pell Grants provides a useful means to compare different institutions in terms of how accessible they are to low-income students. It is also useful in comparing institutions in terms of their undergraduates' socioeconomic backgrounds. Future goals should be for UC to maintain or increase the proportion of students from lower economic levels.



Undergraduate Pell Grant Receipt – UC and Comparison Institutions, 2007-08



Source: UC Annual Accountability Report, May09 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf

# <u>Instructional profile (student-to-faculty ratio; student credit hours by level and faculty appointment, etc.)</u>

The quality of education at the University of California is fundamentally derived from the background and expertise of the ladder faculty. While teaching by non-ladder lecturers and adjunct faculty are vitally important to the delivery of a quality UC education, the bulk of the teaching effort has to reside with ladder faculty. It is also important that student/faculty ratios are kept at a level where larger enrollment lower-division classes can be balanced with smaller upper-division lecture and seminar courses.

Changes to the student/faculty ratio must be maintained at or near historic levels and the proportion of teaching provided by ladder faculty must not be replaced by lecturer or other teaching titles.

Indicator 7.8 Student-Faculty Ratios, 2002-03 to 2007-08





Student Credit Hours by Course Level and Faculty Appointment, 2003-04 to 2006-07



Source: UC Annual Accountability Report, May09 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf







#### Source: UC Annual Accountability Report, May09 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf

Table 15													
	University of California												
UNDERGRADUATE FORMAL INSTRUCTIONAL ACTIVITIES													
Selected Faculty Types													
New TE Methodoav													
		2003-04			2004-05								
				Number of					Number of			Percent	
Faculty Type	TIE Classification			Student		Percent			Student		Percent	Change	Percent
		Number of	Classes Per	Credit Hours	SCH Per	of All UG	Number of	Classes Per	Credit Hours	SCH Per	of All UG	Number of	Change
		Classes <sup>(4)</sup>	Faculty FTE	(SCH)	Faculty FTE	Classes	Classes <sup>1+7</sup>	Faculty FTE	(SCH)	Faculty FTE	Classes	Classes	FTE
Regular-	T-Classes: Transmitting the Knowledge Base	13.813	2.3	3,460,565	578.4	43.1%	14,174	2.3	3.558.079	577.5	44.4%	2.6%	
Rank	I-Classes: Initiating Intellectual Independence	4,581	0.8	108,334	18.1	53.9%	4,560	0.7	115,714	18.8	54.5%	-0.5%	
	E-Classes: Emphasizing Independent Inquiry	1,736	0.3	44,271	7.4	66.8%	1,834	0.3	46,229	7.5	70.6%	5.6%	
	Total	20.129	3.4	3.613.170	603.9	46.6%	20.568	3.3	3,720.022	603.8	47.9%	2.2%	
	Total FTE Positions, Regular-Rank	5,983					6,161		-,				3.0%
Visitors	T-Classes: Transmitting the Knowledge Base	1,324	4.4	329,642	1,106.2	4.1%	1,213	4.4	284,660	1,027.7	3.8%	-8.4%	
& Adjuncts	I-Classes: Initiating Intellectual Independence	329	1.1	11,849	39.8	3.9%	274	1.0	9,762	35.2	3.3%	-16.8%	
	E-Classes: Emphasizing Independent Inquiry	90	0.3	2,302	7.7	3.5%	84	0.3	2,113	7.6	3.2%	-7.2%	
	Total	1,744	5.9	343,793	1,153.7	4.0%	1,570	5.7	296,535	1,070.5	3.7%	-10.0%	
	Total FTE Positions, Visitors & Adjuncts	298					277						-7.0%
Lecturers <sup>(0)</sup>	T-Classes: Transmitting the Knowledge Base	10,172	6.8	1,868,284	1,249.7	31.7%	9,852	6.8	1,841,213	1,279.5	30.8%	-3.1%	
	I-Classes: Initiating Intellectual Independence	2,154	1.4	115,029	76.9	25.4%	1,992	1.4	104,684	72.7	23.8%	-7.5%	
	E-Classes: Emphasizing Independent Inquiry	238	0.2	6,066	4.1	9.2%	230	0.2	5,796	4.0	8.9%	-3.3%	
	Total	12,564	8.4	1,989,378	1,330.7	29.1%	12,074	8.4	1,951,694	1,356.3	28.1%	-3.9%	
	Total FTE Positions, Lecturers (Unit 18)	1,495					1,439						-3.7%
E				70.004					70.440				
Emeriti	I-Classes: Transmitting the Knowledge Base	363	N/A	72,281	N/A	1.1%	269	N/A	73,448	N/A	0.8%	-25.8%	
	I-Classes: Initiating Intellectual Independence	30	N/A	2,315	N/A	1.2%	115	N/A	2,574	NA	1.4%	17.5%	
	c-classes. Emphasizing Independent Inquiry	40	N/A	1,173	N/A	1.8%	43	N/A	1,080	NA	1.6%	-6.9%	
	Total ETE Positions, Emeriti	507 N/A	N/A	/5,/66	N/A	1.2%	42/ N/A	N/A	11,102	N/A	7.0%	-10,7%	N/A
							-1//4						A
Senate	T-Classes: Transmitting the Knowledge Base	527	5.0	120,775	1,226.4	1.6%	577	5.3	133,022	1,239.1	1.8%	9.6%	
Lecturers <sup>(d)</sup>	I-Classes: Initiating Intellectual Independence	205	2.0	6,229	59.3	2.4%	225	2.1	7,094	65.7	2.7%	9,6%	
	E-Classes: Emphasizing Independent Inquiry	41	0.4	1.051	10.0	1.6%	31	0.3	772	7.1	1.2%	-25.7%	
	Totai	774	7.4	136,054	1,295.8	1.8%	833	7.7	141,688	1,311.9	1.9%	7.7%	
	Total FTE Positions, Senate Lecturer	105					108						2.9%
1.1													

off per nd FTE.

Source: UCOP Academic Affairs Faculty Instructional Activities Report http://www.ucop.edu/planning/fia/documents/fia\_annlrpt2007.pdf

# **UCDAVIS** FACTS

#### STUDENTS



For more information regarding student and instructional FTE see http://budget.ucdavis.edu/data-reports/instruction \* The Professional Schools and Special Programs are not included

#### HTTP://FACTS.UCDAVIS.EDU

#### Source: UC Davis Facts

http://facts.ucdavis.edu/documents/instructor and students trends.pdf

# **Affordability**

## **Student Expenses and Funding Sources**

Student financial aid is based on the total cost of attendence, including living expenses as well as student fees. Tracking student fees will provide an indication of how the educational fee portion of the student's share financing a UC education changes over time. Parental support, gift aid (scholarships and grants), student loans, and student work all contribute to the funds needed to support a UC education.

#### Figure 1-1

Average Undergraduate Tuition and Fees at UC and Selected Independent Institutions as a Percent of California Median Household Income, Academic Years 1984-85 to 2008-09<sup>1</sup>



#### Figure 1-2







Figure 1-6 Per Capita Net Cost by Parent Income, Academic Year 2008-09<sup>4</sup>

Indicator 2.10

Number of Hours Undergraduates Worked Per Week by Family Income, 2007-08



Source: UC Annual Accountability Report, May09

http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf Figure 1-23

Trends in Student Work Hours, SEARS 1998-2007

100% -	and the second second	1	- A.C.	the second second		
90% -	11.6%	12.7%	16.1%	12.3%		
80% -	14.5%	14.0%	12.0%	10.9%		
70% -	14.6%	15.9%	14 3%	13.2%		
60% -			14.576			
50% -	18.9%	21.9%	15.8%			
40% -	- man	11/1/1/	min	1.1.1.1		
30% -	1.5.5.1		To Marco	46.6%		
20% -	40.4%	35.6%	41.9%	40.076		
10% -	1	-				
0% -	SEARS 1998	SEARS 2001	SEARS 2004	SEARS 2007		
■ 21 or More	11.6%	12.7%	16.1%	12.3%		
■ 16 to 20	16 to 20 14.5%		12.0%	10.9%		
■ 11 to 15	14.6%	15.9%	14.3%	13.2%		
10 or Less	18.9%	21.9%	15.8%	17.0%		
I No Work	40.4%	35.6%	41.9%	46.6%		

Source: UCOP Student Academic Services Report http://www.ucop.edu/sas/sfs/docs/regents\_0809.pdf

Source: UCOP Student Academic Services Report http://www.ucop.edu/sas/sfs/docs/regents\_0809.pdf

# **Debt burden upon graduation**

Student fees continue to rise as state funding has decreased, putting more pressure on all students financially and increasing both the number of hours students need to work to meet their expenses and the debt they accumulate when the graduate. The more students are diverted by having to work to support their education the less time they will have to devote to their studies, potentially having a compromising effect on quality. Debt and work hours should be monitored over time to track whether financial aid is adequately supporting low-income students and whether work hours are becoming excessive when balanced against the time needed for study.

The benchmark used by the UC Regents to evaluate the manageability of student debt is the percentage of UC students' average earnings upon graduation that is required to repay the student's debt at graduation based upon a standard repayment plan. Under the Education Financing Model, debt that requires between 5% and 9% of a student's postgraduate earnings is considered to be manageable.





Figure 1-16 Trends in Parent Borrowing by Parent Income, 2008-09 Constant





#### Figure 1-28

Manageability of Debt at Graduation by Parent Income: Percentage of Students' Average Salary Required to Repay Student Loans



Source: UCOP Student Academic Services Report http://www.ucop.edu/sas/sfs/docs/regents\_0809.pdf

## Frequency and nature of post-baccalaureate study

A UC undergraduate education provides the preparation necessary and appropriate for further education in graduate or professional programs. UC should strive to maintain a high level of success in having UC graduates admitted to programs of further study. Several examples of data identifying post-baccalaureate study are shown below.

The 2008 UCUES survey showed that 37% of seniors planned on enrolling in graduate or professional school following graduation. UC should aim to maintain or increase this in future years.



http://www.universityofcalifornia.edu/studentsurvey/charts/charts\_pdf/2008\_aca\_engagementwithfaculty.pdf

Historical data for enrollment trends for UC Davis shows post-graduate enrollment consistently in the range from 33 to 43%. While specific levels will fluctuate from year to year trends should maintain a steady average or increase in future years. Hopefully similar data for UC could be obtained to provide similar measures.



Another measure that provides insight into the quality of a UC education is how well it prepares students for graduate education. The example below from UC Davis shows strong student satisfaction in their preparation for postgraduate education. Hopefully similar data for UC could be obtained to provide similar measures.



49

# Number of Degrees Awarded

The 1960 Master Plan for Higher Education in California designated that UC would accept students from the top 1/8 of graduating high school seniors. As the population of California has grown and the number of graduating seniors has grown, these higher numbers have been reflected in the number of degrees awarded by the University of California. As budgetary funding tightens we must insure that a UC quality education continues to be available to the top echelon of graduating high school students.



03-04

Indicator 1.13 Undergraduate Degrees Awarded, 2000-01 to 2007-08

01-02

02-03

00-01

Source: UC Annual Accountability Report, May09 http://www.universityofcalifornia.edu/accountability/documents/accountabilityreport09.pdf

05-06

06-07

07-08

04-05



Source: California Department of Education - Dataquest <a href="http://data1.cde.ca.gov/dataquest/">http://data1.cde.ca.gov/dataquest/</a>

# **WORKING GROUP RECOMMENDATION**

# **Education and Curriculum**

Recommendation 6: Improve the student transfer function by requesting that UC campuses publish the lower-division pre-major requirements they expect from students for admission to each major. This will help minimize the number of students transferring into a program without the lower-division courses needed to be admitted to their major of choice, and facilitate a reduction in the time to degree for transfer students.

In many cases, students are admitted to the university with a "proposed major" and later petition the department to officially declare the major; often admission to the campus does not guarantee admission to a particular major. Students who transfer without having completed critical lower-division courses for their proposed major may not be admitted to the program until they have completed the expected lower-division courses, often extending the time to graduation. Many transfer students who are ultimately denied initial entry to their chosen major were unaware that they were lacking the prerequisites for entering the major when they make their decision to enroll.

Specific actions that are recommended include:

- 1. Undergraduate major programs at each campus should be requested to codify and publish the qualifications that they expect of all students at admission to the program. These premajor qualifications would in general be a small set of courses to be completed with a level of performance that is demonstrated to correlate with potential success in the program.
- 2. The UC Transfer website (<u>http://uctransfer.universityofcalifornia.edu/index.html</u>) should be expanded to include additional majors common for transfer beyond the current list of 21 majors, and links to the specific campus websites developed under the first part of this recommendation should be incorporated into the UC transfer website. These supplementary websites will be able to provide more specific information about courses at a given campus that can be used in the ASSIST website to identify specific articulating courses at community colleges.

#### Rationale:

The transfer path from the California Community College (CCC) system to UC is an important aspect of the State's higher education system, offering opportunities for capable students that, for one of several reasons, may not be in a position to apply for and attend a UC campus as they enter into the State's higher education system. Affording these students a clear, transparent path towards their eventual attainment of a Bachelor's degree would help to maximize the effectiveness of this important academic trajectory and increase motivation for students considering transfer to UC.

#### Impact on Access:

Successful completion of the recommended actions is likely to increase access to the University for economically disadvantaged and under-represented populations, who are more comprehensively represented in the CCC system than in the UC system.

#### Impact on Quality:

Transfer students would enter the University with better preparation, and would be likely to benefit more quickly and more thoroughly from University course offerings, and interactions with faculty and peers.

#### Fiscal Implications:

For this set of students, the actions would act to reduce the cost per degree to the state and the University by efficient use of campus facilities and instructional personnel. Contributes to affordability for students.

#### Challenge:

Expectations for lower division student preparation for a major program are determined by the program's faculty in terms of their local curriculum. Successful articulation of CCC courses to local program requirements is a known challenge with multiple known limitations. Programs that provide clear recommendations and requirements need the support of routine and timely processes that update public websites. Programs will need to develop reasonable policies and practices about how students will be held to these requirements.

#### Next Steps for Implementation:

Bring initiative to the attention of campus Provosts and relevant Divisional Academic Senate committees to develop an interest on the campuses in providing a readily accessible and reasonably uniform format for the posting of program requirements.

#### Other Options Considered:

Continued reliance on IGETC and available course-to-course articulations without student guidance about how to prepare for success in particular programs. Selective transfer admissions based upon course completion.

#### The UC Transfer preparation website:

http://uctransfer.universityofcalifornia.edu/index.html

Supplemental campus website at UCSC:

http://advising.ucsc.edu/roadmap/premajors/index.html

# **WORKING GROUP RECOMMENDATION**

# **Access and Affordability**

Recommendation 7: Continue to allocate undergraduate systemwide financial aid funding to equalize expectations for student borrowing and work across all students at all campuses.

Recommendation 2 from the Access and Affordability workgroup reaffirms the University's commitment to be financially accessible for all undergraduate students admitted to the University. Consistent with this principle, low-income students should not be denied access to educational opportunities, including their campus of choice, that students with greater resources enjoy.

Achieving this goal requires a minimum level of financial accessibility at every campus. Campuses should have an equal starting point for maintaining a common manageable level for the amounts students are expected to work and borrow to meet their educational costs. Systemwide financial aid funding should be allocated to achieve this common level at all campuses.

Campuses differ in both the financial profile of the students who enroll and the costs of attending the campus. For instance, in 2010-11, the estimated percentage of undergraduates who are low-income Pell Grant recipients varies from 27% at UC Santa Barbara to 45% at UC Merced and UC Riverside. Similarly, educational expenses vary across campuses due to many factors, including differences in local cost-of-living for off-campus students, on-campus living expenses, health insurance premiums, and the percentage of students who live at home rather than on- or off-campus. The average 2010-11 student expense budget ranges from \$26,300 at UC Irvine to over \$29,000 at UC Santa Cruz.

UC's current Education Financing Model methodology for allocating undergraduate systemwide financial aid funding to the campuses recognizes these campus differences and their implications for the amount of funding needed to provide for a common expectation from student borrowing and work across campuses. Campuses with higher percentages of low-income students and/or campuses with higher costs of attendance receive more systemwide funding per student than campuses with higher income students and/or lower educational costs.

The Commission should reaffirm UC's commitment to this allocation strategy to ensure that all campuses have the minimum amount of funding needed to achieve a common expectation for student borrowing and work across the system.

#### Rationale:

- The overarching goal of financial access should be a systemwide goal. Students should not be expected to work and borrow more just because they enroll at a campus with higher percentages of low-income students or at a campus in a higher cost-of-living area.
- There should be no incentive for campuses to reduce their enrollment of low-income students. If campus financial aid funding is sensitive to the income profile of students, campuses will not be advantaged by enrolling higher income students who do not need financial support.

• Financial accessibility needs to be defined in terms of the impact on students, not in terms of the impact on campus resources. Financial accessibility does not mean that every campus contributes the same percentage of their student fee revenue to financial aid if such contributions mean that some students will have less financial accessibility (i.e., will have to work and borrow more) than others.

#### Impact on Financial Access:

• An allocation methodology that is based on a common expectation for student work and borrowing equalizes financial access across campuses.

#### Impact on Quality:

• No direct impact on quality.

#### Fiscal Implications:

- The allocation methodology would not affect UC's total expenditures on undergraduate financial aid. The University's need-based grant program would continue to be funded by setting aside a portion of new undergraduate systemwide fee revenue (currently 33%) for financial aid. To the extent that rising costs and other factors require funding to meet UC's systemwide goal for financial access beyond the amount generated by this practice, the total funding designated for systemwide financial aid might be adjusted.
- The distribution of the systemwide funding for undergraduate financial aid across campuses would continue to reflect campus need for grant funds to meet a systemwide level of financial accessibility as measured by a common expectation for student work and borrowing at all campuses. Some funds would continue to be redistributed from campuses with lower grant need to campuses with greater grant need.

# Challenges:

• Under this allocation approach campuses do not necessarily retain all the systemwide fee revenue their undergraduate students generate. The fee revenue used for undergraduate financial aid is redistributed across campuses to equalize financial access.

#### Next Steps for Implementation:

• None – this is the current allocation methodology.

#### Other Options Considered:

• Each campus would contribute a set percentage of undergraduate systemwide fee revenue to undergraduate need-based aid. This approach would allow all of the systemwide fee revenue to remain on the campus rather than a portion being redistributed across campuses. However, it would also result in unequal financial access across campuses with students at some campuses being expected to work and borrow as much as \$1,800 more than students at other campuses.

# **WORKING GROUP RECOMMENDATION**

# Access and Affordability

# Recommendation 8: Provide additional financial support to middle-income families while preserving access for low-income families.

While increased access to need-based grants has generally resulted in no increase in the University's net cost of attendance for low-income students, the net cost has risen steadily for most middle-income students due to both fee increases and increases in other costs (housing, books and supplies, etc.).

The University should consider ways to provide additional assistance to middle-income families, particularly if UC fees are expected to continue to rise significantly. Currently, UC ensures that financially needy middle-income students with parent incomes up to \$120,000 receive grants to cover at least one-half of any annual fee <u>increase</u>. Options for enhancing this assistance include:

- Expanding the current program to cover 100% of any annual fee increase
- Expanding the Blue and Gold Opportunity Plan (which currently covers families earning up to \$70,000) to cover 50% of <u>all mandatory systemwide fees</u> for eligible students with parent incomes between \$70,000 and \$120,000
- Raising the income ceiling on the existing Blue and Gold Opportunity Plan to cover 100% of all <u>mandatory systemwide fees</u> for eligible students with parent incomes up to \$120,000.

Cost estimates for these options are shown under "fiscal implications," below. Note that any enhancement must be contingent upon the identification of resources to cover these costs. *The cost of providing this assistance must not be borne by redirecting funds away from low- and middle-income students who currently qualify for UC need-based grants.* One possible fund source is private donations for scholarships as described in Recommendation 9 of the Access and Affordability Workgroup. Other options might include increasing the return-to-aid from undergraduate fee revenue or establishing a return-to-aid from nonresident tuition to be used for this purpose.

#### Rationale:

- UC expects a lot from middle-income families. UC's current approach to financial aid relies on the federal expected parent contribution (PC), combined with a student selfhelp contribution from work and borrowing, to determine a student's need for grant assistance: if the PC plus the self-help contribution exceeds the student's total cost of attendance, the student generally does not qualify for a UC grant. Since the PC rises quickly with income, many middle-income families qualify for little or no grant assistance. Expressed as a percentage of total income, the PC is highest for parents earning between \$80,000 and \$120,000 (between 14% and 17% of total income). Financing this PC in addition to covering the student self-help contribution requires a combination of student work and borrowing, parent savings, parent income, and parent borrowing that many middle-income families find burdensome.
- Fee increases are particularly jarring for middle-income families. For middle-income families, recent UC fee increases have been large and difficult to predict. This pattern makes it difficult for families to plan their educational finances. UC's current policy of

covering one-half of any fee increase for needy middle-income students partly mitigates this problem by helping families "transition" to higher fees, but this approach delays only a portion of the impact for one year. Any of the options described above would provide more meaningful relief to these families.

- Temporary enhancements to middle-income tax credits are set to expire after 2010. The American Recovery and Reinvestment Act of 2009 temporarily increased the value of higher education tax credits available to middle-income families. After tax year 2010, however, the value of these credits will fall between \$700 and \$2,500 (depending on the family).
- UC lacks a clear financial aid message for middle-income students. While UC has a simple, clear public message regarding aid to low-income students (the Blue and Gold Opportunity Plan), UC lacks such a message for middle-income students.

#### Impact on Financial Access:

 By enhancing and providing a clearer message about UC affordability for middle-income students, UC will increase the likelihood that these students continue to apply and enroll. The income mix of UC students has remained stable through 2008-09 (the latest year available), suggesting that UC has remained affordable to families at every income level. Enhancing aid for middle-income students would help preserve this track record even as fees rise.

#### Impact on Quality:

• No direct impact on UC quality.

# Fiscal Implications:

• Varies by option. The table below depicts the estimated cost for 2010-11 of UC's current program for middle-income students and the options described above. Note that although the cost estimates are for 2010-11, the Workgroup agrees that any revised program should be introduced in 2011-12 at the earliest.

	Option	Estimated Cost (2010-11)
Current:	Cover 50% of annual fee increase for one year for needy families up to \$120,000	\$3M
Option 1:	Expand current policy: cover 100% of annual fee increase for one year for needy families up to \$120,000	\$7M
Option 2:	Expand Blue and Gold: cover 50% of Ed/Reg fees for needy families with income between \$70,000 to \$120,000*	\$23M
Option 3:	Expand Blue and Gold: cover 100% of Ed/Reg fees for needy families with income up to \$120,000*	\$37M

\*Assumes other Blue and Gold eligibility criteria apply (CA resident, enrolled 4 years or less, etc.)

#### Challenges:

• *Funding.* Each of the options described above represents an incremental cost beyond UC's current policy. Note that Workgroup's Recommendation 9 (which would require campuses to dedicate a portion of their gifts and endowment for need-based grants in

exchange for greater flexibility) would result in approximately \$3M in additional funds for need-based grants, or the approximate difference between UC's current approach and Option 1.

 Not all middle-income students would qualify. The Workgroup believes that eligibility for need-based grants should continue to be limited to students with financial need under federal guidelines. Only about half of all students with parent incomes between \$70,000 and \$120,000 have financial need. UC would need to avoid raising expectations for families without need.

#### Next Steps for Implementation:

• A concrete proposal would need to be developed and reviewed by appropriate parties.

#### Other Options Considered:

- The Workgroup's Recommendation 5 (a multi-year fee schedule) represents another way to reduce the uncertainty and frustration associated with fee increases.
- The Workgroup considered capping the parent contribution at 10% of total income for all families with incomes up to \$120,000, but rejected this option due to its cost (\$120M at least).

# **WORKING GROUP RECOMMENDATION**

# **Access and Affordability**

Recommendation 9: Explore options for achieving the twin goals of providing campuses flexibility in the fund source used to meet UC's minimum commitment to undergraduate financial accessibility and improving financial accessibility for middle-income students.

Currently, campuses are allocated systemwide fee revenue to provide the need-based grant aid required to meet their minimum commitment to undergraduate financial accessibility. They supplement this allocation with scholarships funded from campus resources, especially gifts and endowments given by donors for financial aid. These funds increase the total amount of support that students receive.

The need for undergraduate scholarships is a compelling argument for some current and potential donors, particularly as UC costs rise. The University could capitalize on the interest in supporting scholarships by increasing both the minimum amount of funding committed to undergraduate financial accessibility and the total amount of funding available for other budgetary priorities.

One option to achieve these goals might have the following two components. The first component would be to dedicate a portion of the scholarship income from gifts and endowments on each campus as a fund source for increasing assistance to financially needy middle-income students (as proposed in Recommendation 8). The gift and endowment income so dedicated would increase the University's <u>minimum</u> systemwide commitment to need-based financial aid.

The amount of gift and endowment income used for the new middle-income student initiative would need to be sensitive to the amount of unrestricted scholarship income available on individual campuses, especially those with smaller capacity to raise private donations. For example, dedicating \$3M from gift and endowment income to enhancing middle-income support would require between 2% (at Berkeley) and 37% (at Riverside) of the total scholarship support provided to their undergraduates from gifts and endowments in 2008-09. [By comparison, increasing systemwide return-to-aid by 2% -- from 33% to 35% -- would generate \$3M for financial aid if fees were to increase by 10%.]

The second component would provide campuses flexibility in the fund source used for their remaining minimum systemwide commitment to need-based financial aid. Campuses could opt, for instance, to use scholarships from gifts and endowments to substitute for fee revenue in their financial aid allocation and use that fee revenue for other funding priorities. This flexibility – to allow campuses to exchange fund sources in meeting their minimum systemwide commitment to financial accessibility -- would allow for a potential increase in the total amount of unrestricted fee revenue available for non-financial aid budgetary priorities.

#### Rationale:

• UC seeks to increase aid to financially needy middle-income students. Given the need for fee revenue to offset state budget cuts for UC's core needs, UC is not able to increase the percentage of systemwide fee revenue returned to financial aid. Directing a

portion of campus gifts and endowments designated for aid is an alternative funding option for achieving this goal.

 UC needs to maximize funding from private donations. Given cutbacks in state funding, UC is more reliant than ever on private philanthropy for basic core needs. Like private institutions, UC needs to leverage donor interest in scholarships to increase donations, thereby freeing up other fund sources for use on budgetary priorities that have less appeal to donors.

#### Impact on Financial Access:

• The impact on financial access depends on campus success in fund raising for scholarships and their decisions about the use of those funds. If campuses raise additional contributions for undergraduate scholarships and use those donations to supplement current financial aid levels, financial access will increase. However, financial access could decrease from current levels if campuses direct their scholarship funds to supplanting, rather than supplementing, their systemwide financial aid allocation.

#### Impact on Quality:

• *Potential improvement in campus quality.* To the extent that resources are freed up for campus funding priorities other than financial aid, the proposal may enhance institutional quality.

# Fiscal Implications:

- To the extent that campuses are able to capitalize on donor interest in contributing to undergraduate scholarships, total funding from philanthropy will increase.
- To the extent that campuses exercise the flexibility to use gifts and endowments designated for financial aid to fund UC's minimum commitment to financial accessibility, funding from philanthropy for UC's non-financial aid funding priorities will increase.
- The specified augmentation from gifts and endowments for support of middle-income students will ensure that UC's minimum commitment to financial accessibility is increased.

#### Challenges:

- To ensure transparency, UC's fund-raising messages would need to be modified. To date, UC's fundraising efforts are generally depicted as augmenting rather than replacing State support. Under this proposal, that message would need to be modified since donations would, in fact, be used to replace state funds and fee revenue (which would then be available to offset cuts in state funding in other areas). UC's message to donors must not suggest that their scholarship donation will necessarily increase the total pool of scholarship funds available to all students.
- Campuses have very different capabilities to raise funds for undergraduate scholarships. In 2008-09, on a per capita basis, UC Berkeley spent \$874 per undergraduate on undergraduate scholarships from gift and endowment income – more than 10 times the

amount at Riverside, Irvine, or Santa Barbara. Campuses with more gift and endowment funding for scholarships could realize much greater benefit from the flexibility to use gifts and endowments to meet their minimum financial aid commitment; campuses with less funding may be less able to free up significant funding for other campus budgetary priorities.

• The required \$3M augmentation from gifts and endowments for improved funding for middle-income students is too small to make a meaningful contribution to addressing UC concerns about middle-income student affordability. However, increasing the required augmentation to a more meaningful level could pose a problem for the campuses with smaller fund raising capability and negate any potential benefit from the increased flexibility in fund source.

#### Next Steps for Implementation:

• A concrete proposal would need to be developed and reviewed by campuses.

#### Other Options Considered:

- Flexibility to substitute gifts and endowment income for the fee revenue in campus financial aid allocations could be provided with no required use of this income to fund a systemwide commitment to improve middle-income student affordability. This approach could be seen as a reduced commitment on the part of the University to financial accessibility.
- The current requirement to use campus gift and endowment scholarships to supplement, rather than supplant, UC's minimum commitment to financial accessibility could be maintained.

# Recommendations of the Research Strategies Working Group to the UC Commission on the Future

# June 11, 2010

Following are the second round of recommendations from the Research Strategies Working Group. Some of these recommendations represent expansions of concepts presented in the first round of recommendations, while others are new recommendations. After we receive comments on the first round of recommendations submitted in March, we plan to combine related recommendations from our March and June submissions into a final report noting our priority ranking of recommendations in four areas: Revenue Enhancement; Advocacy; Administrative Efficiencies and Cost Savings; and Research Quality Enhancement.

# **RECOMMENDATIONS RELATED TO REVENUE ENHANCEMENT**

# Sponsored Internships, Fellowships, and Teaching Engagements

Recommendation 1: Collaborate with foundations, businesses, industries and the National labs to provide internships and fellowships for undergraduate and graduate students, and opportunities for industry leaders to work with UC students, providing new sources of student support and reducing the overall cost of education.

# Rationale:

- Most UC students find careers in the private or non-profit sector using their training in engineering, science, the professions, the arts and humanities. There is an enormous potential to find support for our students through enhanced use of internships, fellowships, and exposure to their future mentors outside the university through cooperation with the private sector.
- Internships that provide students with work for outside organizations during their undergraduate or graduate careers could reimburse a large fraction of their educational costs. Additional benefits to students include exposure to career options outside of academe, experiences that clarify career goals, and additional career development opportunities. The University would benefit through receipt of funds from these outside organizations to fund and facilitate the internship program, while the outside organizations would benefit through recruitment and training opportunities for potential future employees.
- Similarly, researchers at the national laboratories and other organizations would welcome the opportunity to become regular members of the UC community as visiting professors. Those whose jobs at their parent organizations would benefit from the UC connection can establish regular contact with students through teaching, reducing the overall student/faculty ratio without increasing the university's costs.

# Challenges:

• Many companies and foundations are experiencing significant fiscal constraints. The challenge will be to identify strong partners with a committed interest in University engagement and resources for supporting internships.

# Impact on Access / Fiscal Implications:

- If 20% of UC students receive internships at 50% time for one year, it would generate at least another billion dollars of student support, equal to the benefit of UC's scholarship drive.
- The engagement of researchers from the national laboratories and other organizations through visiting professorships would reduce the overall student/faculty ratio without increasing the University's costs.

# Impact on Quality:

- The quality of a UC education is greatly enhanced by research internships and fellowships that can provide valuable work experience, professional mentorship, and exposure to potential career paths and opportunities outside academic environments.
- Through visiting professorships, researchers from the national laboratories and other organizations can help reduce student/faculty ratios, bring "real-world" experience and professional mentorship to our students and greatly enhance our relationships with these laboratories and organizations, benefiting students and faculty alike.

# Next Steps for Implementation:

- Examine existing internship programs within UC, including the "Graduate Student Internships for Career Exploration" (GSICE) program at UCSF, established internship programs in engineering, and those established with government, foundations, community service organizations, and policy-making agencies.
- The University of California should reach out to foundations, businesses, industries and the national laboratories to develop systemwide opportunities for internships and fellowships, and visiting professorship engagements.

# **RECOMMENDATIONS RELATED TO ADVOCACY**

# **UC Research Mission Statement**

Recommendation 2: UC should adopt the following as a systemwide research mission statement:

Research is central in the University of California's mission to benefit California and society globally as we discover, interpret, apply and communicate new knowledge and innovations that ensure the quality education we provide our students, inspiring them to be leaders and contributors to the public good.

- Research: The California Master Plan for Higher Education designates UC as "the state's primary academic research institution," charged with providing the highest quality both in research and in undergraduate, graduate and professional education.
- Discover: UC researchers discover new basic and applied science, technological, social, and cultural knowledge that benefits California and the world.
- Interpret: UC researchers make new discoveries while also preserving and reexploring historical and cultural knowledge.
- Apply: The work of UC researchers inspires new ways of thinking, solutions and innovations that catalyze the industries, economy, society, and culture of California.
- Communicate: As both researchers and educators, UC faculty are committed to conveying new knowledge, discoveries and innovations to our students, stakeholders, policy makers and the public.
- Educate: UC researchers give students unique access to the newest and best research that prepares them to be life-long learners, leaders and contributors to society. At UC, research and teaching are part of a single act of exploring and communicating knowledge.

Short version:

# University of California We discover, interpret, apply, communicate and educate

# Rationale:

- Need for consolidated UC research mission statement. This recommendation was
  produced by the Research Strategies Working Group in response to frequent requests
  for an effective, consolidated UC research mission statement. Existing UCOP, UC
  campus, and other UC communications and Web pages often contain language about
  the purpose of UC research, but such language exists in a bewildering variety of
  formats, at different levels of detail, and in only partial agreement on how to emphasize
  or contextualize the research mission.
- *Public and internal goals of UC research mission statement.* This recommendation complements the Research Strategies Working Group's recommendations on

"Advocating for UC Research at a National Level" and "Public Engagement" by strengthening the engagement between the University and its public. Internal to UC, a consolidated research mission statement helps remind us during a difficult season of budgetary retrenchment that it is the high-quality research of our faculty and students that distinguishes the University of California from all other public institutions of higher learning in California.

- Criteria guiding the creation of an effective UC research mission statement:
  - o It must be clear and concise so that it can be used broadly and often.
  - It must represent research in the context of the tripartite mission of UC (research, teaching, service).
  - It must emphasize that research is central to the overall mission of the University of California, as well as integral to both educating students and serving society.

# Next Steps for Implementation:

- Adopt mission statement in current and future UC communications at the systemwide and campus levels.
- Use mission statement in future UC public advocacy and engagement campaigns.
- Illustrate with examples of UC research and its impact from a wide variety of disciplines (our final report will provide a large list of examples that the Research Strategies Working Group has collected by polling UC faculty, administrators, and campus media offices).

# **Public Engagement**

# Recommendation 3: Create innovative practices to engage the public with the goals and results of research to strengthen links between the historical service mission of the university and its 21st-century research mission.

Because the contemporary dilemma of research is less what C.P. Snow called the "two cultures" division between the sciences and the humanities than the even wider division between university research and the public, UC should make it a high priority to devise new ways not just to communicate its research to the public, but also to learn from and respond meaningfully to the public throughout the research process. We note that the Office of the President has recently enhanced its public communication strategies, as well as communications with the State. We applaud these efforts and provide the following recommendation to enhance these efforts with regard to research.

# Rationale:

- As a public university system, UC has a social-contract obligation to bring the full diversity of science, technology, social, and cultural resources to bear on global problems that also affect California, and for which California is often a pioneer in entrepreneurship, public policy, social experimentation, and cultural innovation.
- Part of the social-contract obligation of UC, descended from its heritage as a public land grant institution, is our dedication to the principle of "linking knowledge with action." This principle values responsiveness to a wide variety of stakeholders, respect for partners, academic neutrality, scientific credibility, usefulness, accessibility, integration, coordination, and resource partnerships (National Research Council, 1996; Kellogg Commission on the Future of State and Land-Grant Universities, 1999; Cash et al 2003).
- Opportunities to link knowledge with action through engagement with the people of California span the full range of UC research activities. An advocacy campaign could draw on extensive examples of UC research with a powerful public impact. Such examples, gathered by the UC Commission on the Future's Research Strategies Working Group, encompass disciplinary fields across the sciences, humanities, arts, social sciences, and behavioral sciences, as well as every UC campus and UC's national labs.
- Positioning UC as a 21st-century research institution means reaping the benefit of new media and communication technologies, as well as new methods of participatory and field research, to reinvent the paradigm of "publicity." Effective public engagement today is a process of give and take, exploiting agile combinations of old and new tools of communication. Exploiting new channels and networks, UC researchers should be able to draw effectively on the knowledge, beliefs, and needs of the public to inform their work; and, reciprocally, the public should be able to learn from UC researchers by engaging directly (*e.g.*, through a distinguished or up-and-coming UC "researcher in the spotlight" appointed on a rotating basis to interact with the public) or indirectly (*e.g.*, by watching the excitement of UC researchers in the field, at the telescope, at sea, in the lab, in the rare book room, working with children, etc.). UC should place itself at the forefront of inventing the new technologies, practices, and institutional arrangements

needed to negotiate between academic "expert knowledge" and the new "networked public knowledge" catalyzed by the Internet.

 Creative implementation of public engagement/advocacy will be especially important if UC follows our recommendation for starting "Grand Challenge" initiatives to bring integrated UC research talent to bear on large-scale, publicly funded projects.

# Challenges:

- *Maintaining balance*. Research that responds to public priorities is but one element of an appropriate UC research portfolio. Research that directly engages the public must be balanced with other forms of foundational academic inquiry; especially basic research, without which meaningful applied research could not be sustained.
- Managing boundaries. Effective institutional safeguards are needed to guide how UC handles conflicting interests and power imbalances among different groups of the "public" with different priorities. The University must enhance existing methods for consulting other institutions, the private sector, and the public at large, protecting academic freedom, preventing conflicts of interest for researchers, ensuring the priority of public interest in any public-private partnership, and drawing a line between policy-relevant research and inappropriate policy advocacy or lobbying.
- Securing sufficient funding in time to meet heightened public expectations. Effective public engagement requires real resources (time, attention, and funding) for consultation, interaction, communication, and translation of research results for specific audiences. Even the simple collection and presentation of research examples for public advocacy, for instance, requires the dedication of skilled communication officers working in consultation with researchers. Engagement and advocacy making use of the new media technologies will require even more thoughtful use of resources and talent. Declining funding levels and lack of stable funding for engagement are critical problems. Enhancing engagement efforts raises public expectations; failure to follow through on commitments can do lasting harm to the reputation of UC. In short, UC must commit to some initial, one-time expenses to enhance the new public engagement/advocacy paradigm. Strong public buy-in for the university research mission is the return on that investment. In addition to securing system-wide benefits, UC must also foster efforts by the various campuses to improve their communication with the public through sharing ideas, information, practices, and technologies across campuses.

# Impact on Access:

• Increased awareness by underserved groups of UC opportunities. Engagement with the full range and diversity of people in California will build links to underserved communities and should increase awareness, aspirations, and access by young people from those communities. There are many examples of the power of these interactions between UC researchers and K-12 students in California's public schools.

# Impact on Quality:

• *Research*. Research initiatives that are responsive to the public and informed by global trends, incorporating insights from experience in the private sector, policy arenas, and communities in California will enable UC to develop its forward-looking research agenda and tackle complex, contentious issues that are significant both for advancing knowledge and for addressing society's emerging needs.

- *Education.* Experience, training and capacity building to "bake in" public-engagement awareness and skills in research programs will spill over into UC education programs (much in the manner, for instance, that many UC programs include professionalization courses and workshops, or that UC engineering departments provide entrepreneurship training). Graduate-student training, for instance, can introduce future researchers to the concept that public engagement and advocacy for research must be part of the research mission.
- *Direct and tangible value to society.* Use-inspired basic research undertaken at UC has historic, current, and future roles in shaping prosperity and quality of life in California. Systematic engagement with the public will enhance the salience of UC research for people in California (and elsewhere).

# Fiscal Implications:

- Higher visibility of tangible research impacts provides compelling evidence for UC advocacy. Advocacy for UC as a research university should proceed at multiple levels simultaneously--including top-level advocacy (*e.g.*, UCOP and the Regents to the Legislature), middle-level advocacy (*e.g.*, communications from departments or programs to their alumni and parents of students), and "in the trenches" advocacy or advocacy by example (*e.g.*, opportunities for the public to see or interact with UC researchers as they go about the task of making discoveries about our universe, planet, nation, state, society, populations, species, etc). Greater public engagement will assist across all of these advocacy activities.
- Increased research funding. Public engagement is one important means of identifying and fostering opportunities for innovative public-private research partnerships. A growing track record of public responsiveness and the legacy of results and impacts of UC research can create a virtuous circle of opportunities for new funding, including partnerships with California industry and government.

# Next Steps for Implementation:

- Inventory ongoing UC engagement activities and collect documentation of their impacts. Such an inventory will establish a comprehensive repertory of best practices for use in UC advocacy and also set a basis for assessing opportunities.
- Consider establishing a rotating award for a distinguished or up-and-coming researcher "in the spotlight"; and creating a media campaign on "A Day in the Life Without UC" that would highlight the benefits of UC research on the daily lives of Californians. Today, large audiences watch crab fishermen on the Discovery Channel, or follow particular blogs. What kinds of technologies, communication practices, and institutional support arrangements would need to be put in place to give a UC researcher a chance at that kind of audience? (For example, UC researchers behind the discovery of green technology, extrasolar planets, nanotech, medical procedures, nearly 50 previously unknown letters of Benjamin Franklin, effective new ways of educating K-12, startling new forms of art or entertainment performance, ancient archaeological or archival finds that refashion our understanding of history, etc.--all of these have the potential to put the value of UC research before the public in dramatic ways.)
- Initiate a process for consulting with internal and external audiences to identify and prioritize new engagement opportunities in concert with the "Grand Challenges" recommendation.

It is worth emphasizing that each of these recommended implementation steps embodies researchable topics that could (indeed should) be developed as ongoing, prospective, system-wide activities led by UC faculty, staff and students, possibly through competitive research grants. Developing UC capacity for monitoring, evaluation, and impact assessment of our own programs would also enhance UC capabilities to undertake these activities on behalf of other agencies and institutions, thereby providing yet another link between the generation of knowledge and more effective action (particularly in the public sector).

# Other Options Considered:

*Business as usual / Status quo.* UC clearly is engaged significantly with the public over a wide range of areas, but these activities seem underfunded and under-recognized by UC, by the people of California, and by our legislators.

# **References:**

Cascardi, Anthony J., and Fiona M. Doyle, "'The Two Cultures' Revisited," Doreen B. Townsend Center Newsletter (Berkeley, Calif.: Townsend Center, 2010): 3-4. Available online at http://townsendcenter.berkeley.edu/point\_of\_view\_Cascardi\_Doyle.shtml

Cash, David, William C. Clark, Frank Alcock, Nancy Dickson, Noelle Eckley, David Guston, Jill Jäger, and Ronald Mitchell. 2003. Knowledge systems for sustainable development. Proceedings of the National Academy of Sciences 100(14): 8086-8091 www.pnas.org\_cgi\_doi\_10.1073\_pnas.1231332100

Kellogg Commission on the Future of State and Land-Grant Universities. 1999. Returning to Our Roots: The Engaged Institution. (The third report in a series.) Available online at http://www.aplu.org/NetCommunity/Document.Doc?id=183

National Research Council. 1996. Colleges of Agriculture at the Land Grant Universities: Public Service and Public Policy. National Academies Press.

Stokes, Donald E. 1997. Pasteur's Quadrant: Basic Science and Technological Innovation. Brookings Institution Press.

## **RECOMMENDATIONS RELATED TO RESEARCH QUALITY ENHANCEMENT**

# **UC Libraries**

Recommendation 4: Maximize the UC library system's capacity to support the University's research mission by: enhancing and developing data curation techniques; extending systemwide acquisition and sharing of resources; expanding accessibility of physical and virtual library space; and promoting systemwide scholarly publishing initiatives.

# Rationale:

UC libraries power research, teaching, learning, patient care, and community service. The intellectual capital of UC libraries—their acclaimed research collections, innovative services, user-friendly facilities, and highly trained staff —constitute an unparalleled resource that must be thoughtfully cultivated in order to ensure its continued support for students, scholars, and the people of California.

- Data curation must keep pace with new forms of knowledge. Not only must libraries preserve and manage the "collection of record" in which large investments have already been made, but librarians must continue to comb through the explosion of new knowledge to keep up with the research demands of UC faculty and students.
- Systemwide acquisition and sharing of resources can lower costs and prevent unproductive duplication. The UC libraries have established a strong track record in securing collaborative purchases and conducting tough negotiations with commercial publishers to reduce the ever-increasing licensing costs of electronic resources. The University must continue to support and expand this capacity.
- The library as a physical and virtual space is central to the university's mission. Library buildings and the resources they hold represent the heart of the academy, and continued physical presence of such buildings, supported by steady funding sufficient to ensure their availability to students and faculty, must be a high priority. The changing role of libraries in creating and supporting virtual spaces must be supported and enhanced, just as the physical facilities are.
- Library-sponsored scholarly publishing initiatives benefit the entire UC system by rapidly making cutting-edge and in-process research available. The libraries have developed and promoted alternative means of publishing, including infrastructure that supports open access more cost-effectively than options made available by publishers.
- The role of the librarian in building and curating collections, providing consultation and instruction, exploring new educational technology, and contributing to the success of UC is more vital and necessary than ever. Thomas Benton has called librarians "activists defending democracy and the First Amendment, as well as visionaries opening the door to the digital future, while protecting our printed legacy."

# Challenges:

- The UC libraries must calibrate their operations to serve faculty and students across all disciplines. Complex and varied fields of study require different types of services from the libraries, including, for example, the maintenance of print collections to meet the needs of the humanities and social sciences.
- Limited acquisitions resources must be wisely managed and shared. Resource-sharing programs such as interlibrary loan and systemwide access to online resources must be supported so that all UC faculty and students have ready access to all materials held by libraries within UC as well as worldwide.
- Data curation is a moving target. UC's libraries must work with other campus and system-level partners to ensure that research data archiving and preservation meet the requirements of funding agencies.

# Impact on Access:

For the humanities and social sciences, libraries offer primary source materials for research as well as individual study space, group study rooms, or collaborative research commons. Libraries also meet the needs of students in sciences and engineering for collaborative study and workspace, and they increasingly provide access to large datasets for analyses. Technological change in the way that information is organized and archived will make it possible for the broader California community to have improved access to UC's library resources.

# Impact on Quality:

Libraries can best support the research, teaching, and service missions of the library by remaining open and adequately staffed with research librarians. Working with faculty, librarians engage directly with students at all levels to teach them new information skills, how to access information, introduce them to multifaceted collections useful in specific disciplines, and expand their understanding of how information resources can help them succeed.

# Fiscal Implications:

Libraries cost money to maintain; we must be forthright about this. Because libraries are at the heart of UC's research mission, they are among the University's most essential expenses. Use of systemwide collaboration, tightening of collection linkages among campuses, and judicious use of UC's combined negotiating power with content vendors and publishers all give UC an advantage in controlling costs, as well as national influence in setting cost trends.

# Next Steps for Implementation:

• UC should continue to use the size and power of its linked libraries, in coalition with other major institutions, to press for access to scholarly databases on financially viable

terms. Faculty and librarians are now doing this with the journal *Nature*, which proposes to raise its prices 400%.

- Develop plans for further linkage of UC collections through shared licenses, distributed data curation, and other cooperative projects.
- Interlibrary Loan services should be adequately staffed, funded, and reinforced.
- Library hours and reference staffing should be protected from further cuts and restored.
- Further develop online publishing capability for individual and collaborative projects, in conjunction with proposed recommendations about Grand Challenge research initiatives and recognition of online and collaborative work for faculty and graduate student advancement.
- Enhance public access to UC collections; digitize special collections.

# **Other Options Considered:**

Concentration on electronic resources only or new collections in support of a restricted range of research interests was considered but rejected since this would result in a reduction of library capabilities to support the UC research mission.

# **References:**

Benton, Thomas H. "Marian the Cybrarian." The Chronicle of Higher Education. May 20, 2010. <u>http://chronicle.com.oca.ucsc.edu/article/Marian-the-</u> Cybrarian/65570/?sid=pm&utm\_source=pm&utm\_medium=en.

Darnton, Robert. The Case for Books: Past, Present, and Future. Public Affairs, 2009.

Johnson, Marilyn. This Book Is Overdue! How Librarians and Cybrarians Can Save Us All. Harper Collins, 2010.

# **Enhanced Research Paradigms and Training**

#### Enhanced research paradigms are needed within UC:

Recommendation 5a: UC should build on its strength as a multi-campus system by improving the ability to create and support multi-campus and system-wide research programs and research training.

#### Rationale (5a):

One of UC's greatest strengths--that which makes it one of the most successful research institutions in the world and allows it to attract top students and faculty in a wide variety of disciplines--is its multi-campus structure. This provides a collective expertise and strength in research that is unparalleled in the world. When its multi-campus strength is effectively harnessed, the whole of the UC research enterprise is much greater than the sum of its parts, allowing much grander projects than a single unconnected university could support, while attracting and retaining faculty and students even in the face of lower total remuneration.

Coordinated research programs offer opportunities to share large-scale resources beyond the reach of an individual campus. Examples of such large-scale shared resources that have allowed UC researchers to excel are the national labs, Sierra Foothill Research and Extension Center, libraries, Multicampus Research Projects and Initiatives (*e.g.*, California Institutes for Science and Innovation), supercomputers, and large ground-based telescopes. When these resources are shared system-wide, they bridge gaps between campuses and increase the stature of all campuses. Coordinated research programs also enable individual campuses to hire critical concentrations of faculty in specialized areas without a loss in breadth in the larger scale program. Coordinated research programs can operate both within a discipline, where individual campuses contribute different sets of expertise to support a large-scale facility, and across disciplines, where campuses may integrate different programs to create a successful combined interdisciplinary program. While UC runs very successful multi-campus research programs, procedural barriers hinder achievement of the maximum advantage of quality combined with cost efficiency. Therefore, UC research could be greatly enhanced by improving the ability to create and support multi-campus and system-wide research programs.

Coordination of multi-campus research would also enhance the training of graduate and professional students inside and outside of the classroom environment. Classroom training currently happens almost exclusively on a graduate student's home campus. However, graduate training requires much more specialized learning than that available at the undergraduate level. Multi-location teaching at the graduate and professional levels would allow students to take specialty courses from experts across the UC system. This would not only improve the quality of education but also reduce the number of specialty classes that need to be taught at individual campuses. In addition, assistantships--an important aspect of graduate training--currently cannot be filled on one campus by graduate students from another UC campus. Allowing such flexibility would permit graduate students to benefit fully from and participate in multi-campus research efforts.
#### Challenges (5a):

- Challenges for Research Programs:
  - Improvements in University policies should be undertaken to overcome significant barriers and disincentives that currently exist for multi-campus research:
    - Reciprocity should be established across UC campuses for approvals to conduct human or animal subjects research.
    - Collaborative studies should be rewarded or recognized in a faculty member's academic personnel review for advancement. Change is especially needed in the humanities, where only single-authored work is valued.
    - The approval process for access to shared resources and facilities should be streamlined.
  - Adjust the incentive structure for fundraising from both private and public sources for multi-campus collaborations by providing proportional development taxes to the campuses. For private funds, development offices are located at the campus level without coordination between campuses. Consequently, development officers from different campuses can approach foundations for the same largescale UC projects. This sends an unclear message to the foundations and decreases the chance of success.
  - Remove impediments to multi-campus research that result from the convention of campus-level competitions for permission to submit a grant pre-proposal or proposal to extramural funding agencies (i.e., making the campus the gatekeeper that limits "slots" for submission to the NSF, foundations, and other funding opportunities). This convention is ill-adapted to UC's strength as a multi-campus system. Proposals for projects that share extramural funding among campuses are disadvantaged in campus-level pre-competitions, even if they are likely to be highly competitive upon final submission to the extramural agency.
- Challenges for Research Training:
  - Course-credit systems are not designed to recognize courses or accommodate students from other campuses. The mixture of semesters and quarters further complicates this issue. All UC campuses should be able to accept grades and credits from other UC campuses and from cross-campus courses.
  - There is a shortage of classrooms and meeting rooms with the appropriate equipment and technology to work collaboratively from distributed locations. Faculty may have to be trained in the use of this technology to be effective.
  - It is difficult to pay research assistants from other campuses (a process that sometimes requires negotiating incommensurable pay scales, navigating complex financial systems, protocols, and graduate-division regulations). Such barriers to multi-campus collaborations need to be removed.

#### Impact on Access (5a):

- Improved access to high caliber facilities
- Improved access to research facilities across the UC system
- Improved graduate and professional student access to specialized training and multilocation courses
- Improved graduate and professional student access to research opportunities across the UC system

#### Impact on Quality (5a):

• The quality and quantity of graduate and professional education would be improved by having specialized courses taught on a multi-location basis by uniquely qualified experts.

#### Fiscal Implications (5a):

- Increase philanthropic giving, in particular from foundations, by creating a coordinated voice for multi-campus research.
- Additional facilities are required to increase the availability and ease of multi-location teaching/learning.

#### Next Steps for Implementation (5a):

- Develop a reward system for collaborations between development offices for multicampus research (*e.g.*, shared gift taxes across participating campuses). This would improve UC's chances of success in raising funds from foundations and possibly even individual donors.
- Set up a system that would encourage campuses to approve large-scale, multi-campus proposals in limited submission competitions without endangering the total number of slots for the entire UC system.
- Establish additional facilities and training for multi-location teaching and research seminars. Encourage faculty to offer courses and seminars across the UC system.

## Recommendation 5b: Each campus should ensure that its academic structures will maintain the quality of research within UC.

#### Rationale (5b):

To enhance research excellence within and across disciplines, UC campuses should:

- engage faculty in creating strategies for successfully organizing and supporting research, and
- share information about strategies that have worked well.

For example, some campuses have had success with faculty searches carried out by several departments, with cluster hiring, and with the creation of faculty positions linked to the development of new initiatives.

Additional areas in which strategic planning may be beneficial include graduate student support packages, seed funding for research projects that show special promise, organization of computer support for research, and the clustering of staff support for grant-writing.

#### Challenges (5b):

- Institutional strategies that have worked well in the past may not be easy to change in response to current budget realities.
- We must ensure that change flows from the bottom-up rather than from top-down decisions. In collaboration, the Academic Senate and campus administrators should set up the facilitating framework for the exploration of new strategies for research organization and support. Administrators should then step out of the way to let the process of inventing those new arrangements evolve organically from existing or emerging concentrations of strength at the individual faculty or department level.
- Where new strategies entail cross-disciplinary work or split faculty FTE, special care must be taken to regulate service obligations, to make research expectations clear, and to reward excellence.

#### Impact on Access (5b):

• By helping maintain the viability of both small and large departments on UC campuses, and thus mitigating the need to merge or eliminate programs, supplementary research strategies can help to preserve undergraduate and graduate student access to a full range of programs at UC. Graduate students involved in multi-program projects may also have access to a larger pool of faculty mentors.

#### Impact on Quality (5b):

Careful strategic planning will help campuses maintain the quality of disciplinary research while supporting effective collaborations.

### Fiscal Implications (5b):

- Cost efficiency. Thoughtful strategies in such areas as faculty hiring, graduate student support, and IT resources may enable campuses to enhance quality without increasing costs.
- *Revenue generation.* Some strategic research plans may enable campuses to leverage new sources of external support.

#### Next Steps for Implementation (5b):

• Campuses should share best practices regarding strategies for: (a) hiring faculty, (b) using project funds to help departments recruit and support graduate students, and (c) implementing shared facilities.

• Policy discussions and revisions should be undertaken through the appropriate Academic Senate and administrative committees.

#### **Other Options Considered (5b):**

Eliminate or merge some departments/programs on some UC campuses; reduce the quality of UC research or concentrate quality in selected areas.

#### References (5b):

Association of American Universities. Reinvigorating the Humanities: Enhancing Research and Education on Campus and Beyond. Ed. Katherine Bailey Mathae and Catherine Langrehr Bierzer. Washington, D. C.: Association of American Universities, 2004. Available online at <a href="http://www.aau.edu/WorkArea/DownloadAsset.aspx?id=6528">http://www.aau.edu/WorkArea/DownloadAsset.aspx?id=6528</a>

#### **Mentoring and Professional Development**

Recommendation 6: Implement mentoring, career, and professional development opportunities for graduate students, professional students, and postdoctoral researchers.

#### Rationale:

UC's postdoctoral scholars and graduate students are critical to the advancement of the research mission and represent the capacity of UC to provide training at the highest levels to maintain research excellence. Effective mentoring and career development above and beyond the generation of research are an important component of graduate student and post-doctoral training.

Graduate students stand at the nexus of faculty research and undergraduate education, while postdoctoral researchers stand at the nexus of faculty research and graduate education. Supporting these students and fellows also bolsters the recruitment of top faculty, and ensures high quality instruction of undergraduate students and graduate students. This interrelation between students and faculty sustains the University of California's academic excellence.

While all of the UC campuses have graduate students, there is considerable variability in the number and proportion of postdoctoral researchers at each campus. Postdoctoral researchers bring new expertise and training to their host institutions, departments and mentors, often assisting in the transition to new lines of research. They engage in mentoring activities for undergraduates and graduate students, assist in the grant writing process, and optimize research and scholarly output. The postdoctoral experience represents a period of intense and directed professional development by providing opportunities for recent Ph.D.s to deepen their research in their area of expertise or, as is increasingly common, to acquire expertise in new areas of research prior to starting careers in industry, government or academic institutions. In many fields, particularly Science, Technology, Engineering, and Mathematics (STEM), postdoctoral training is critical to professional advancement after the doctoral degree, especially for those pursuing tenure-track faculty positions. Postdoctoral positions are also becoming more common in the Humanities, Arts, Behavioral Sciences, and Social Sciences (HABSS).

Professional and career development programs for graduate students, professional students, and postdoctoral researchers are a significant and important aspect of training; one important component of these programs is mentoring. Mentoring has been demonstrated to have positive effects on career satisfaction, likelihood of entering academe, and recruitment of underrepresented minority junior faculty. Mentors also have cited significant benefits in their own career satisfaction. Excellent mentors are committed to furthering the careers of their students and fellows, as well as providing a supportive professional environment. In addition, excellent mentors provide exposure and networking opportunities within professional circles. Development of strong mentoring programs on UC campuses will likely improve degree completion rates among graduate students, as well as enhance the image of UC as a supportive educational and research environment.

#### Impact on Access:

If UC is seen as a supportive institution in which to receive training, our efforts to recruit the most qualified graduate students, professional students, and post-doctoral researchers will be enhanced. We also will enhance our efforts to recruit the top candidates from groups that are under-represented at the University, thereby increasing the diversity of UC.

#### Impact on Quality:

- Research indicates that effective mentoring increases the productivity of students and trainees, thereby enhancing research. Effective mentoring also creates synergy between faculty and students, enhancing the integration of teaching and research. Creating a more engaged experience will allow graduate students and postdoctoral researchers to become more effective TAs, effective researchers, and mentors for undergraduate students that they teach and interact with in the classroom and laboratory.
- A strong mentoring program will provide a legacy and skill-set for students to possess when they graduate from UC. Graduate education and increasingly postdoctoral fellowships are necessary to prepare future professors, research scientists, academic physicians and veterinarians, teachers, social workers, psychologists, policy experts, and lawyers. Therefore, mentoring should be a major aspect of enhancing research experience and training.
- A system-wide effort to enhance mentoring and professional development will increase research productivity and produce a professional workforce whose training reflects the quality of their host institution. It will also enable all campuses to comply with the training guidelines mandated by major federal granting agencies such as NSF and NIH.

#### Challenges:

- Per Academic Personnel Manual (APM) 210.1, the evaluation of teaching for appointment and promotion of faculty should also consider mentoring; however, it appears that some campuses have not encouraged faculty to document their mentoring activities, nor do all campuses consider mentoring in their evaluation for advancement. Mentoring on all campuses should be encouraged, valued, and rewarded.
- Excellent mentoring requires training of both mentors and mentees. Such training programs exist at only a few UC campuses. Resources will be needed to establish mentoring programs at all UC campuses.
- For some of the smaller campuses where postdoctoral scholar populations are small and the provision of similar support and training for graduate students (who are a larger segment of the population) is also limited, these recommendations may be difficult to implement. Consequently, a critical component of enacting this recommendation is the implementation of multi-campus training programs and events, as well as the creation of joint services that benefit both graduate students and postdoctoral researchers. There are cases wherein resources already available to the graduate division can be collaboratively utilized by graduate students and postdoctoral researchers in a manner that improves their effectiveness for both groups. Because many of the UC campuses

already provide excellent graduate and postdoctoral resources, their programs can be used as models for success and they can be shared with other campuses via multilocation seminars, videoconferencing and joint workshops.

#### Fiscal Implications:

- *Mentoring programs and training require resources.* While funds will be required to establish and maintain excellent mentoring programs, strong mentoring programs are likely to increase retention and degree completion rates for graduate students, thereby increasing the "return on investment" for graduate student support.
- Increased research productivity. Graduate students who maintain regular contact with their mentors can receive valuable help on troubleshooting experiments and guidance on writing grant proposals as well as manuscripts for publication. This enhances the overall UC enterprise as effective mentorship will save the faculty member and graduate student time in completing their training.
- Increased federal research funding and recruitment of faculty and students. Federal agencies such as the National Institutes of Health (NIH) and National Science Foundation (NSF) are supportive of, and in many cases require, specific mentorship and training activities as a part of their grants. Strong mentoring programs at UC increase our faculty members' competitiveness in applying for federal grants. Furthermore, rewarding those faculty members who do a good job in mentoring helps them to serve as role models for their peers and to recruit future graduate students and faculty members.

#### Next Steps for Implementation:

- Establish mentoring programs for graduate students, postdoctoral researchers, and professional students on all UC campuses. Existing mentoring programs with documented success can be used as models for other UC programs (*e.g.*, the UCSF Faculty and Postdoctoral Mentoring Programs).
- Graduate students should be trained and rewarded for being effective mentors to undergraduate students, especially in guiding undergraduate student research.
   Examples already exist within the UC system where graduate students are rewarded for their excellence in guiding undergraduate research. It would be beneficial to have these types of incentives available for graduate students at all UC campuses that engage in the teaching and training of undergraduates.
- Establish mentoring awards for faculty, postdoctoral researchers, and graduate students (all of whom mentor trainees).
- Encourage documentation of mentoring and consideration in academic advancement reviews. Such documentation could include an assessment of the accomplishments of mentored trainees, including: publications during training, abstracts and presentations at professional meetings, teaching evaluations, grants/fellowships awarded and current position. Letters should be requested from graduate students, professional students, and/or postdoctoral researchers whom the faculty member has mentored.

- Ensure that graduate and postdoctoral programs include a career and professional development component. One implementation approach would be to create seminar courses that provide career and professional development training such as development of a curriculum vitae, job search strategies, and professional networking. Seminar speakers could include alumni who now work in a variety of settings, including industry, government, foundations, and universities. These courses could be done in a multi-location teaching format, making use of specialized expertise and addressing needs on campuses with limited resources.
- Provide enhanced administrative and financial support for campus career centers so that they can mount valuable workshops, assessments, career fairs, visits by speakers and recruiters from various employers.
- Create partnerships with industry and others to augment graduate and postdoctoral programs and career development opportunities. Under this model, companies would contribute modest amounts of funding each year that could be rewarded competitively, with oversight and governance residing within UC.
- Establish an office or administrative position dedicated to postdoctoral support, training and tracking of postdoctoral researchers on each campus. This entity would oversee professional development workshops and courses that include basic skills and career counseling, collaborating with the graduate division whenever possible. The entity would also support and assist a postdoctoral scholar association, a critical component of postdoctoral support. Because postdoctoral scholars are primarily research staff, administrative responsibility for them should be housed under the Offices of the Vice Chancellors for Research in collaboration with the graduate division for each campus.
- The appointment of an administrative liaison of postdoctoral affairs at UCOP would greatly assist in enhancing coordination of programs across campuses. The purpose of this position would be to facilitate the management and coordination of postdoctoral support efforts across all of the campuses, including compiling data on postdoctoral scholars generated by each campus; coordinating yearly meetings between offices and administrators across the system; and organizing shared events such as training workshops and retreats between campuses, as well as between UC and non UC institutions.

#### <u>References / Examples:</u>

- http://www.springerlink.com/content/1383072723614542/
- http://www.springerlink.com/content/c5j1777230g35076/
- www.rackham.umich.edu/downloads/publications/Fmentoring.pdf
- statusofwomen.ucsf.edu/pdf/GS\_mentoring.pdf
- <u>http://academic-</u> senate.berkeley.edu/committees/pdf\_docs\_consolidate/mentoring%20gdelines-FINAL.pdf</u>
- <u>http://grad.berkeley.edu/sarlo/</u> (This one from UCB focuses on rewarding faculty members for excellence in graduate student mentorship)
- http://planning.ucsc.edu/wasc/eereview/docs/mentoring-vocbehav.v59.2001.pdf

- <u>http://www.gdnet.ucla.edu/asis/sfap/srmintro.htm</u> (This one from UCLA is geared for supporting graduate students in the Humanities and to encourage faculty-student collaboration)
- http://www.sciencemag.org/cgi/content/summary/324/5923/13
- http://www.the-scientist.com/news/display/57221/
- http://chronicle.com/article/A-New-Career-Guide-for-PhD/45562/
- <u>http://chronicle.com/article/A-PhDa-Failure/44884/</u>
- <u>Guidelines for postdoctoral training:</u> <u>http://www.the-scientist.com/article/display/18834/</u>
- Institutional Best Practices for Postdocs
  <u>http://www.nationalpostdoc.org/policy/institutional-policies/recommended-practices-for-institutions</u>
- Improving the Postdoctoral Experience: An Empirical Approach: <u>http://www.nber.org/~sewp/Davis\_SurveyAnalysis20060201.pdf</u> Davis, G. 2005. Doctors without orders. American Scientist
- <u>UCSF Gladstone- New Scientist Best Places to Work Postdocs 2005-2010</u> <u>http://www.gladstone.ucsf.edu/gladstone/site/postdoc/</u>
- Joint workshops for postdocs and graduate research assistants at Berkeley Lab (Lawrence Berkeley National Laboratory http://www.lbl.gov/Ops/survey/postdoc/#wkshp

The following are samples from a collection of UC research examples gathered from existing UC documents (e.g., from Los Alamos National Labs) and a survey of UC humanities, arts, behavioral science, and social-science faculty conducted by the "Research Mission & Principles" subgroup of the UCOF Research Strategies Working Group in spring 2010. Additional samples from this collection will be written up and added in summer 2010 to serve as material for a possible future UC research advocacy and public engagement effort.

[Note: These descriptions have not yet been fact-checked. Image permissions will have to be cleared for any future publication. (Most, but not all, of the images are taken from the relevant research sites. Some are generic placeholders.]

#### UC RESEARCH CONTRIBUTIONS TO THE PUBLIC

STEM Disciplines (Science, Technology, Engineering, Mathematics)









#### Oil Spills and Wildlife

When an oil spill spreads over the surface of the ocean endangering birds and other small mammals, rescuers spring into action, thanks to a formidable network led by UC Davis wildlife veterinarians in conjunction with the California Department of Fish and Game. Injured animals are cleaned and rehabilitated at a dozen facilities stretching along the entire 1,100 miles of California's coast.

#### Cyclotron

Ernest O. Lawrence, namesake of the Lawrence Berkeley National Laboratory, designed the first cyclotron, launching the scientific use of particle physics to discover the fundamental structure of matter. The cyclotron has had a major impact on the treatment of diseases, making it possible to create in large quantities the radioactive isotopes used in medical treatments.

#### Insect control

UC Berkeley Professor Edward Steinhaus, a pioneer in the field of insect pathology, used bacteria to attack a caterpillar that infests alfalfa. This was the first successful use of an insect pathogen to control insects in the field. Today these bacteria, Bacillus thuringiensis, are used worldwide to fight crop disease

#### Laser Diode

UCSB researchers, from the Solid State Lighting and Display Center in UCSB's College of Engineering, achieved lasing operation in nonpolar gallium nitride (GaN) semiconductors and demonstrated the world's first nonpolar blue ]violet laser diodes. These new orientations of GaN will result in laser diodes with lower operating power and longer lifetimes, which are necessary for high ]performance operation.













#### Dairy

Better sanitation procedures, improvements in raw milk handling and quality, and innovations that have reduced the environmental impact of livestock waste have contributed to making California the nation fs largest dairy state. The J ]5 vaccine alone, developed in 1988 by veterinary medicine faculty to prevent mastitis in dairy cattle, saves producers \$11 million every year.

#### Baby Sign Language

UC Davis research gave birth in the 1980s to "baby sign language," a thenrevolutionary way to communicate with infants. Ongoing studies by UC Davis psychology professor Linda Acredolo have demonstrated that children who sign as babies have higher IQs at age 7 and 8 than those who don't.

#### Diabetes

UCSF scientists isolated the gene for insulin, leading to the mass production of genetically engineered insulin to treat diabetes.

#### Cleaner Smokestacks

Frederick G. Cottrell, UC Berkeley professor of chemistry, developed an electrical precipitation device to clean smokestack emissions; it is still in use today.

#### State Water Project

Engineering work at UC Davis played a big part in the design of the 444-mile-long California Aqueduct and other elements of the State Water Project that today serves 23 million Californians and 755,000 acres of farmland. Jaime Amorocho and others built water project models in a laboratory that now bears his name and that is used today by scientists designing river pumps and other diversion works that are safer for fish like the endangered delta smelt.

#### Renewable and Appropriate Energy Laboratory

The PACE -- property assessed clean energy -- program was developed in a collaboration between the City of Berkeley, CA, and a research team at the UC Berkeley Renewable and Appropriate Energy Lab led by Professor Daniel Kammen. The program flips the conventional financing model around, building equity in clean energy investments. PACE has rapidly been adopted by 10 states, the White House, and is part of the Waxman-Markey Climate bill.







In 1993, UCLA paleobiologist J. William Schopf found the earliest evidence of life on Earth, dating back 3.5 billion years, and in 2002, he substantiated the biological origin of the earliest known cellular fossils. In 2006, Schopf and colleagues produced 3-D images of ancient fossils - 650 million to 850 million years old preserved in rocks, an achievement that had never been done before. The technique could be used to look for life on Mars. *Most Powerful Magnet Helps Create Futuristic Materials* A world-record-breaking magnet is helping scientists create nextgeneration materials that will help make our buildings greener, our gadgets smaller, and our power and light systems more efficient.



#### Nanotechnology for Tech, Environment, and Medical Benefits

Los Alamos scientists are creating miniature machines that have cellular characteristics. Capabilities are endless: self-repairing computer chips, removing greenhouse gases, making human organs self-healting.



UCLA faculty and graduate students run the UCLA planetarium and offer weekly, free shows for the public and schoolchildren to give a sense of the excitement of hands-on research into the universe. Visitors at the shows view planets, nebulae, star clusters, and other celestial objects through the facility's telescopes.

#### HABSS Disciplines (Humanities, Arts, Behavioral Science, and Social Science)



#### *Treasure of Previously Unknown Letters by Benjamin Franklin*

In the Spring of 2007, in the British Library, UC San Diego Political Science professor Alan Houston discovered nearly 50 previously unknown letters by Benjamin Franklin. "I couldn't sit still; I couldn't work," Houston remembers. "On the last day, on the last document [of my research trip], and I had this incredible discovery. I ran out of the library and called my wife in San Diego." When the letters were published in 2009, they created a stir in national and international media. The letters, Houston says, show "an example of Franklin's skill of working with people of different agendas and different concerns, appealing to their interests, appealing to their passions, appealing to their political beliefs."

# Eternal Stinuli

#### *Research into Human Cognition Leads to Credit Card Fraud Prevention*

With collaborators of the Cognitive Science Program at UC San Diego, Professor David Rumelhart played a leading role in the development of the "backpropagation algorithm" as a theory of human learning and cognition. Developed in the late 1970s and early 1980s, the theory became a major machine-learning algorithim now used in countless engineering applications. It is also used today in familiar applications such as credit card fraud detection.

#### **DigitalOcean**

Researchers at the UC Santa Barbara Carsey-Wolf Center for Film, Television, and New Media working on "environmental media" have created the DigitalOcean online network to encourage communities of scientists, educators, students, policy makers, media specialists, ocean enthusiasts, and others to share in producing and learning knowledge about the seas. Their "Sampling the Sea" Learning Space engages middle and high school students in 200 classrooms around the world in monitoring, analyzing, and sharing information about the declining global fish population.



#### World History For Us All

Led by researchers Ross Dunn at San Diego State University and Edmund Burke at UC Santa Cruz (in cooperation with the UCLA National Center for History in the Schools), the "World History For Us All" project makes available a free, publicly available model curriculum adaptable for K-14 world history courses.













#### Culture and Human Moral Life

Jason Throop at UCLA, Stephen Parish at UC San Diego, Joel Robbins at UC San Diego, and other professors work in the anthropology of morality, exploring the cultural aspects of ethical subjectivity that deepen our understanding of human ethical subjectivity and may lead to new perspectives on ethics.

#### California Newspaper Project

A project of the Center for Bibliographical Studies and Research at UC Riverside, the California Newspaper Project identifies, describes and preserves California newspapers. Close to 9,000 California newspapers were inventoried in over 14,000 repositories throughout the state, 1.5 million pages of California newspapers were preserved and made available on microfilm, and 100,000 rolls of negative microfilm rolls are being processed for permanent storage at the UC Regional Library Storage Facilities.

#### Students Learn from California Holocaust Survivors

Professor Deborah Hertz founded and directs the Holocaust Living History Workshop at UC San Diego. Its aim is to use the Visual History Archive, a database at USC of 52,000 Holocaust survivor testimonies, to connect undergraduate students and local survivors. The Workshop brings local speakers to the library to speak to students, and the students in Professor Hertz's "Holocaust as Public History" class make their own video interviews.

#### Helping Drivers Avoid Collisions

Professor John Andersen of the Psychology Department at UC Riverside studies how the brain processes information in performing complex tasks. His research focuse on improving driving performance and safety, including among aging people. One facet of his studies has been to identify the perceptual mechanisms drivers employ to detect and avoid collisions. His findings have important implications for how to design effective in-vehicle warning systems and semi-autonomous driving systems that can take control of a vehicle when a driver fails to detect an impending collision.

#### The Prehistory of Multitasking

Professor Monica Smith at UCLA conducts research on the longterm development of human behavior as exhibited in archaeological remains. Her book *A Prehistory of the Ordinary Person* examines the long history of multitasking as a human adaptive strategy.

"Multitasking is not just a modern notion," she says, "it has characterized human activities for more than a million years. The ability to undertake many tasks simultaneously through complex processes of language, cognition, and social interaction enabled our species to go from being merely one type of clever but vulnerable primate to being the only species whose conscious actions with material objects continually shape the landscape."





A collaboration of artists, musicians, and engineers at UC Santa Barbara led by Professor JoAnn Kuchera-Morin of the Music Department and Media Arts & Technology program are work in the one-of-a-kind AlloSphere. The AlloSphere is a globe-like, immersive 3-D visualization facility used to explore the kind of complex multi-dimensional data essential in such sciences as nanotechnology, neuroscience, and chemistry. It is also a stage for experimentation in combining art with science--as when visitors fly through a brain-scan map of artist-architect Marcos Novak's mind, which Novak compares to a bodily "architectural space."

#### Preuss School Prepares K-12 Students from Minority and Low-Income Backgrounds for College

A college preparatory public charter school on the campus of UC San Diego, the Preuss School has been named Best High School in California Serving Low Income Youth, the 8th Best High School in the U.S., and one of the Top Ten High Schools in the U.S. For example, 82% of Preuss graduates in the 2004 and 2005 classes enrolled in college compared to 36.5% of students in comparison groups for those years. The school achieved the highest API score among San Diego County high schools in 2009.



Protestors in Hong Kong after arrest of Liu Xiaobo

#### **Big Humanities**

Digital media and arts researchers in the UC San Diego Software Studies Program are at work on a federally-funded "Cultural Analytics" project that uses new digital technologies to explore and present large datasets of humanities, art, and cultural material. For example, the project allows researchers and students to move seamlessly between seeing any individual painting by artist Mark Rothko and seeing it on the developmental plot of thousands of his paintings.

#### UC and Human Rights Around the World

In fall 2008, Professor Perry Link of the Comparative Literature and Religion and Foreign Languages Department at UC Riverside worked with the drafters of China's "Charter '08" to produce an English version of the Charter. The Charter, which was signed by over 300 Chinese intellectuals and human rights activists, argues for democratization in China. It has had a public impact around the world and in the U.S. Congress. Liu Xiaobo, arrested in 2008 as a drafter of the Charter, was nominated for the Nobel Peace Prize.



#### Berkeley Center for Independent Living

The Berkeley Center for Independent Living was the first of its kind in the U.S. It brought together students and the community to find ways for disabled people to live independently from parents and from institutions. Stressing peer counseling and support, the Center provided a wide array of services, and it undertook a major role in advocacy for reform legislation in California and the nation. The Berkeley model, used in the 1973 Rehabilitation Act as a demonstration of best practice, spread rapidly around the country and eventually the world. It provided a basis for national and international legislative and other social changes that transformed disabled people's lives.

#### Literature and Neuro-cognitive Science

Some scholars are turning to magnetic resonance imaging of the brain and cognitive theory to explore how and why people read fiction. As the New York Times reported in a story titled ""Next Big Thing in English," a prominent leader in the field is the scholar Lisa Zunshine, who trained in neuro-cognitive and evolutionary-psychology approaches to literary studies as a graduate student at UC Santa Barbara.



#### An Ancient South American Empire

UC San Diego archaeologists working in the southern Peruvian desert discovered a previously unknown system of agricultural colonies of the Tiwanaku culture, dating to the 7th century AD. Ongoing excavations are discovering how this early state society watered the desert and organized its vast provincial network through work at the region's only Tiwanaku temple, as well as towns and cemeteries. Research on ancient societies' relationship to land and resources has great relevance to modern problems. Ongoing work on the Tiwanaku includes studies of desert ecology, climate change and irrigation, analyses of ancient ceramics, metals and textiles, and mortuary and isotopic studies of excavated Tiwanaku mummies' to understand diet and migration patterns over the long term.



#### Helping Dual-Career Working Middle Class Families

Researchers in Anthropology, Applied Linguistics, Education, and Psychology at the UCLA Sloan Center on Working Families have started a Center on Everyday Lives of Families to study how working parents and their children approach the challenges of balancing the demands of work, school, and family life using detailed, ethnographic research of everyday life.



#### What is the Community Reading?

UC Santa Barbara Media Arts & Technology Professor George Legrady's "Making the Invisible Visible" media installation was chosen as permanent art installation at the Seattle Public Library. The installation, which consists of a series of high-definition screens behind the main library circulation desk tied into the library's computer system, visualizes the books being checked out, providing a visualization of what the whole community is reading

#### Sources:

- UC Research Contributions 032510-1.pdf
- Los Alamos National Lab, <u>http://www.lanl.gov/discover/science</u>
- Survey of UC HABSS faculty conducted in April 2010 by Alan Liu, member of UC Commission on the Future, Research Strategies Working Group (RSWG)
- Suggestions from various UC media office, RSWG members and UC faculty

- **Recommendation 1:** Systematically collect and present information on the effectiveness of comprehensive academic program reviews by our campuses and Academic Senates. (pp. 69-71)
- **Recommendation 2:** Systematically collect and present information from the Chancellors regarding their policies and practices of ensuring academic units are meeting core course teaching requirements through improved curricular design, better term-to-term planning of curricular offerings, and better alignment of faculty course assignments with workload policies. (pp. 72-74)
- **Recommendation 3:** Increase to \$250 million per year in five years the income derived from self-supporting and part-time programs. The initiative will expand opportunities for a UC education to existing and potential students, working professionals, and underserved communities, while generating revenues that may be applied in support of UC's core instructional mission. (pp. 75-77)
- **Recommendation 4:** Convert all UC campuses to a systemwide semester calendar. (pp. 78-81)
- **Recommendation 5:** Increase successful community college transfers to UC. (pp. 82-85)
- **Recommendation 6:** Accelerate and broaden the pilot program on online instruction. (pp. 86-88)
- **Recommendation 7:** Initiate planning for a coordinated approach to the delivery of online instruction. (pp. 89-91)
- **Recommendation 8:** Increase faculty salaries from additional non-state resources where possible. (pp. 92-93)
- **Recommendation 9:** Establish a Presidential initiative to drive systemwide efficiency measures in our administrative and financial practices. (pp. 94-97)
- **Recommendation 10:** Implement a "University of California Strategic Investment Program" (UCSIP) program to fund strategic investments. (pp. 98-101)

Recommendation 1: Systematically collect and present information on the effectiveness of comprehensive academic program reviews by our campuses and Academic Senates including (1) the elimination of unnecessary program duplication, (2) intra-and inter-campus program consolidation, and (3) programs discontinued due to low enrollment, low degree production, and/or quality concerns, particularly those that are not responsive to state need or student demand. Request the Chancellors work with campus Academic Senates to reinforce that the program review mechanisms are designed to:

- encourage investment in new programs while recognizing budget constraints may require redistribution of resources to support them;
- ensure reappraisal of existing programs at regular intervals to determine whether to maintain, expand, contract or discontinue programs.

State fiscal circumstances are such that the University is shifting from a long-term growth pattern to steady state mode for the foreseeable future. Accordingly, it is imperative that campuses carefully evaluate, more rigorously than ever, each new proposal in light of the resources available to fund its entire academic program. Proposals should be encouraged as they represent faculty innovation in new fields or additional student demand or state need in existing areas. They are often the instructional counterpart of knowledge creation and therefore imperative to support as part of the University's evolving educational profile.

To accommodate valuable new initiatives or individual program growth, however, UC academic and administrative leaders must consider the implications of having fewer resources available for other endeavors. Adding new programs in a zero-sum environment requires eliminating existing programs based on some assessment of their relative value. Programs with low enrollment, low degree production, and/or quality concerns – particularly those that are not responsive to state need or student demand – are good candidates for this type of assessment.

Chancellors must continue to ensure that Deans and faculty reviewers are empowered to conduct candid evaluations and to act on those expeditiously when contraction or discontinuance is indicated. They also must exercise authority to prevent *unnecessary* duplication of programs across the system. Most campus to campus "duplication" is warranted in terms of student demand and state need: no one would argue that one English, mathematics or biology department is sufficient for the entire University. Nonetheless, review of both existing programs and new proposals should include assessment of the extent to which offerings are currently available in other parts of the University. Faced with limited resources, campuses may elect to collaborate to provide programs that are difficult to support with enrollments from a single campus.

#### Rationale:

Priority-setting is critical in this fiscal environment. Accretion of programs is not an option and campuses must make informed choices among competing interests. Programs are not widgets that can (nor should) be easily or lightly added or dismantled. Maintaining robust review processes will highlight trade-offs embedded in each decision related to the academic program. By informing these decisions, rigorous program

review processes will support campus efforts to shrink and/or eliminate academic programs where indicated. Such actions are a difficult but necessary part of making the best possible program choices in an era of stable or declining resources.

#### Impact on Access:

• This recommendation does not have a direct impact on student access to the University but rather would affect the programs and courses available to UC students.

#### Impact on Quality:

 Strong program review processes will help ensure that UC continues to establish and maintain programs of the highest quality. Historically, it has been a challenge to close weak programs and there has been only episodic pressure to do so, coinciding with budget cuts in previous economic downturns. Current cuts are so severe that routine, unflinching assessment of all programs – existing and proposed – must continue to prioritize among the many demands for resources. Quality will be well-served by targeting resources to programs of highest priority, eliminating unnecessary duplication, and encouraging intercampus collaborations that may arise out of fiscal necessity.

#### Fiscal Implications:

• This recommendation should yield savings by monitoring and strengthening campus ability to downsize or eliminate certain programs and preventing unnecessary program duplication across the system. These "savings" will be directed at investing in new programs or growing existing programs.

#### Challenges:

- Contraction/elimination of programs: Faculty may be resistant and timeframes for realizing "savings" are not immediate (i.e., a number of years may be needed to accommodate teach out plans for students enrolled in programs slated for closure).
- Inter-campus collaborations: While there are existing examples (e.g., language consortium), collaborations on degree programs take a great deal of time, effort and coordination. Faculty may get discouraged by logistical and administrative hurdles.
- Enforcing a zero-sum program review approach may prompt faculty to seek professional degree fees or self-supporting frameworks for programs for which these models are not appropriate.

#### Next Steps for Implementation:

- Request campuses evaluate and, as necessary, modify existing program review processes:
  - 1. to require identification of resources to support approved new programs or significant growth in existing programs;
  - 2. to ensure that reviews of new proposals as well as existing programs include information on program availability elsewhere in the UC system, discussion of

why additional capacity is needed (if applicable), and identification of opportunities for intercampus collaboration (where appropriate); and,

- 3. to provide for timely action to consolidate or eliminate programs when such outcomes are indicated as a result of program reviews.
- Establish a systemwide framework for an initial comprehensive review of academic programs building on existing, ongoing campus reviews that identifies academic breadth and depth and areas of overlap and areas of specialization.
- Ask campuses to undertake an evaluation of their academic programs utilizing the systemwide framework, and, if deemed beneficial, on a common timeline. Identify areas where a multiple-campus or systemwide approach could be useful in making academic program decisions.

Recommendation 2: Systematically collect and present information from the Chancellors regarding their policies and practices of ensuring academic units are meeting core course teaching requirements through improved curricular design, better term-to-term planning of curricular offerings, and better alignment of faculty course assignments with workload policies.

One of the hallmarks of UC quality is the depth and breadth of its curricula. In addition to prerequisite courses that are required to meet general education and major requirements, UC faculty offer a wide-ranging curricula that include many specialty courses that add richness to the educational experience of UC students. However, decisions regarding appropriate course offerings in a particular academic term are not necessarily based on a solid assessment of student demand. Through the following actions, this recommendation would attempt to increase student throughput and provide students the courses they need for regular progress.

- <u>Curricular redesign</u>. If similar action has not already been taken, UC academic departments or units that offer baccalaureate degree programs should emulate the Challenge 45 process put in place jointly by the UCLA Academic Senate and administration. Specifically, programs should regularly review major course requirements for BA/BS degrees and seek to eliminate unneeded, outdated, or redundant requirements. In addition, programs should carefully consider the sequence of courses needed to complete the major, and test against the course taking patterns of its students.
- 2. <u>Better planning of curricular offerings</u>. Technology (degree audit systems) can enable campuses to look ahead and see in advance what required courses students (in aggregate) will need in a particular term. For example, these systems can identify that there are 30 Sociology majors entering their last term of their senior year who have not yet completed the upper division statistics requirement for the degree. Campuses and departments can use this information to fine tune the scheduling of courses offerings and then identify faculty to teach those courses.
- 3. <u>Regular monitoring of faculty course assignments and workload policies and practices</u>. Current UC policy requires every academic department to have a written policy concerning faculty instructional responsibilities and these policies are required to be provided to campus and UCOP officials. Campuses also collect detailed information on classes taught, number of students per class or section, instructor type, and student credit hours awarded. Where systems are in place to do so, campuses currently merge instructional data with degree audit data to determine appropriate offerings by term and needed class size, as well as assess faculty course and enrollment loads. UCOP will work with the campuses to build better monitoring systems that allow closer alignment of student course needs with available resources (e.g., faculty, classrooms).

#### Rationale:

• Benefit to state and society. Ensuring that UC provides efficient use of its instructional resources maximizes the support provided to UC from the state. Students graduating sooner can enter the workforce earlier and contribute to the state's social, cultural, and economic development.

- Benefit for students/families. Improved curricular patterns and sequences will provide more coherence to students pursuing particular majors and free up opportunities for academic exploration outside of the major. Graduating in fewer terms would mean substantial savings (e.g., campus fees, housing and living expenses, and school loans) for students and their families.
- Benefit to the University. Examining and streamlining degree requirements provides the University an opportunity to update its educational objective and to better manage its curricular offerings. The University would make more effective and efficient use of its resources and produce more degrees for the same level of enrollment.

#### Impact on Access:

• Improved time to degree will result in more available spaces at the University for additional students. UC will be able to accommodate more students and more students will have access to a UC education. Access to gateway courses should also improve outcomes for community college transfer students.

#### Impact on Quality:

• Better-designed curricular sequences and more effective deployment of faculty to highdemand courses should improve the quality of the undergraduate educational experience. More advance notice in assigning faculty to courses should also allow faculty to better plan the time they devote to their equally important duties, research and service.

#### Fiscal Implications:

• Reduces the cost per degree to the state and the University by efficient use of campus facilities and instructional personnel. Contributes to affordability for students.

#### Challenges:

- Academic departments are already struggling to meet workload demands given budget reductions and furloughs reexamining the curricula and ways to assign faculty to courses will require an upfront investment in faculty time.
- Implementation of this recommendation needs to be undertaken in a manner that does not negatively affect UC's other missions, research and service.

#### Next Steps for Implementation:

- Request campuses/academic departments to begin process of examining major requirements that exceed 180 quarter or 120 semester hours.
- Ensure that each campus has established procedures for projecting demands for particular courses in advance and utilizes that information to inform departmental teaching assignments.
- Improve systemwide collection of instructional data by expanding the data detail collected, and integrate collection into standardized data extracts collected on a routine

(by quarter or semester) basis. Develop UC accountability measures that can be used for comparing faculty workload across campuses and explore national data sources that might allow comparisons with similar institutions.

Recommendation 3: Increase to \$250 million per year in five years the income derived from self-supporting and part-time programs. The initiative will expand opportunities for a UC education to existing and potential students, working professionals, and underserved communities, while generating revenues that may be applied in support of UC's core instructional mission.

To achieve this aggressive goal, the President is instructed to:

- 1. In collaboration with the Academic Senate:
  - revise policies and streamline review processes so that proposals for new selfsupporting academic degree programs can be reviewed and approved within 6 months from receipt; and
  - b. develop mechanisms to allow University Extension to offer baccalaureate and master's degrees with appropriate Academic Senate oversight.
- 2. Establish clear guidelines to distinguish self-supporting programs from state-supported ones with regard to their use of campus and university resources.
- 3. Develop as a shared enterprise the marketing, enrollment management, and other services that are required at scale to enable academic departments and campuses cost effectively to deliver self-supporting programs and that cannot be mounted as cost effectively by campuses acting independently. It is intended that such "shared services" would be developed and made available as systemwide utilities helping campuses, schools, and departments to offer self-supporting programs without diminishing their distinctive character or academic and business objectives.

#### Rationale:

By increasing the number and breadth of self-supporting degree programs, and introducing means that enable their timely expansion and/or contraction, UC will:

- Meet California's needs for more educated professionals.
- Respond to societal and workforce needs as they continue to change rapidly in volatile regional and global economies.
- Generate new revenue that will support its core mission.

#### Impact on Access:

 While the higher fee levels of self-supporting programs can be a barrier to access for some, these programs can be designed to return a portion of the fees to financial aid to ensure students of all means have the opportunity to attend these programs. In addition, to the extent that self-supporting programs generate additional revenues for academic departments, this improves access for students in the regular programs.

- Self-supporting programs, completion programs, and delivery of UC courses to non-UC students could all provide qualified students with another avenue to some high quality UC education.
- For UC-bound advanced high school students or CCC transfer students, access to UC courses prior to their matriculation at UC could potentially reduce the required credits they would need to take while on campus.

#### Impact on Quality:

• Degree programs and courses offered for UC credit, whether through departments or UC Extension, would continue to adhere to current Academic Senate processes and standards of quality. While faculty attention to larger numbers of programs presents some challenges, properly managed, this initiative could enhance academic quality by generating additional resources for core programs.

#### Fiscal Implications:

- Significant new revenue from new self-supporting degrees. Current UC self-supporting programs generate annually about \$100 million. Those programs yield about \$25 million per year above program costs, most of that revenue comes from the high-cost self-supporting executive MBA programs. The target for this recommendation would be to increase net revenues to \$250 million.
- These programs also could provide a source of additional graduate student support if supervised advanced Ph.D. students were permitted to teach in these programs.

#### Challenges:

- Obtaining Academic Senate support for these programs given the following:
  - Concerns about expanding the role of UC Extension to degrees.
  - Uneven understanding and application of existing policy across campuses with regard to self-supporting programs offered in collaboration with Extension.
  - Adequate resources for timely Academic Senate review of proposed new courses, programs or degrees.
  - Concerns over teaching staff and teaching load.
  - Concerns regarding the creation of a "second-tier" program.
- Protracted process for approval of new graduate programs may force campuses to miss time-sensitive opportunities.
- Absence of capacity to design, develop, and deliver revenue-generating self-supporting degree programs at scale including: market research, marketing and student recruitment, enrollment management, student advising and mentoring, student information and registration, course management systems, etc.
- Absence of investment capital to develop such essential services at scale, making them available to campuses, schools, and departments as utilities.

- Current inability to allow self-supporting courses to be taken by other students, and vice versa, which will require development of transparent financial accounting that will allow a permeable separation between self-supporting and regular courses and students.
- Eight campus extension programs operating on a sub-optimized level to offer services enabling self-supporting programs and competing over a finite market.

#### Next Steps for Implementation:

- Develop proposed policies on self-supporting programs that can be reviewed by the Academic Senate and UC Administration.
- Examine best practices from UC campuses and comparable AAU institutions and that have been successful in developing self-supporting programs.
- Begin process of identifying and cost-effectively sourcing from a shared or utility service, the capacity required to deliver self-supporting programs from multiple campuses, schools and departments. Look at shared or systemwide approaches such as those represented by the California Digital Library and strategic sources initiatives as well as campus-wide ones.
- Identify from strategic initiative funds the loan funding necessary to develop shared or utility services and a business plan appropriate to repaying the investment.

#### Other Options Considered:

• Expand self-supporting programs under current policies, using under-capitalized service capacity.

## Recommendation 4: Convert all UC campuses to a systemwide semester calendar.

Of the University of California's nine undergraduate campuses, only Berkeley and Merced offer a semester calendar. The remaining seven undergraduate campuses are on the quarter system, with the exception of some professional schools that have elected to maintain a semester calendar (e.g., UC Davis Law School, UCLA Law School).

The Commission on the Future recommends that all UC campuses convert to a single systemwide calendar and that the calendar be a semester calendar. This would ease coordination and collaboration across UC campuses and with Master Plan partners, other universities, and scholarly organizations. Although conversion to a semester calendar will require an initial financial outlay, long-term cost savings are expected from the leveraging of academic resources across campuses.

#### Rationale:

- Calendar alignment within UC. A single academic calendar for all UC campuses would facilitate multicampus endeavors in research and teaching (e.g., degree programs that span multiple campuses, online instruction offered at multiple campuses). The mechanism for students to engage in cross-campus instruction would benefit from a single calendar, as would systemwide planning, leveraging of resources, and coordination in areas such as enrollment planning and financial reporting. Transition to a single academic calendar would require curricular overhaul and review, which would refresh and strengthen the curricula in all disciplines, and present opportunities for cross-campus discussion and agreement on curricula.
- Coordination with other California public higher education institutions. A semester calendar would support the transfer function and the articulation of courses between the three segments of the Master Plan. The majority of California Community College campuses are on the semester calendar, as are the majority of California State University campuses. The assessment and transfer of credit from these educational institutions would be eased by a semester calendar.
- Alignment with high schools, universities, scholarly and professional organizations, and internship opportunities. California high schools are on the semester calendar, as are approximately eighty percent of all institutions of higher learning in the United States. Eighty-seven percent of AAU institutions are on the semester calendar. A semester calendar supports high school student participation in UC courses, and eases UC student and faculty collaboration with and participation in other institutions' programs, and vice versa (e.g., summer programs, education abroad, visiting faculty appointments). Scholarly and professional organizations coordinate the scheduling of conferences and events with semester calendars. Government and workplace internships favors students on a semester calendar, who have first pick of choice placements.

#### Impact on Access:

- *Improved articulation.* A systemwide semester calendar would ease articulation of courses between community colleges and UC for purposes of credit transfer.
- *Transfer experience.* A systemwide semester calendar would improve the transfer experience for community college students, many of whom find the accelerated schedule of the quarter calendar academically challenging.
- *Curriculum overhaul.* The curricular overhaul effort, which would have to be undertaken to convert from a quarter to a semester calendar, could be leveraged to further align UC courses with CCC courses.

#### Impact on Quality:

• Learning outcomes. There are no data on the difference in learning outcomes between quarter or semester calendars, and several institutions that have examined the issue have concluded that learning outcomes are not significantly different. The quarter calendar has time for more courses so students get more exposure to a variety of subjects; the semester calendar provides more time for in-depth teaching, research, fieldwork, and interaction with faculty. In addition, the semester calendar mitigates transition adjustments for freshman, transfer and graduate students from institutions on the semester calendar.

#### Fiscal Implications:

- Cost of conversion. Data on the cost of calendar conversion comes primarily from universities that undertook or contemplated the effort. The University of Minnesota converted from a quarter to a semester calendar in 1999, it engaged in a four-year preparation period and spent approximately \$5 million, not counting costs associated with modifications to student record systems. Ohio State University, which will transition from a quarter to a semester calendar in 2012, estimates that the total cost of calendar conversion will range from \$8.7 million to \$11.2 million. In 2001 CSU Los Angeles prepared a report on semester conversion and estimated that it would cost roughly \$3,277,800 over four years.
- Information systems modifications. Campus information systems, such as student records, course scheduling, and financial aid systems would require modifications to accommodate the conversion to the semester system. In 2002-03, UCLA estimated that systems modification for the campus would cost \$2.0-\$2.5 million.
- Decline in student workload. Universities that transitioned from quarter to semester terms experienced a temporary drop in student workload as students, who were accustomed to taking three or four courses per quarter, transitioned slowly to a four or five course workload per semester. This drop, which could affect state funding and student time to degree, is likely to be short-term other institutions experienced a rebound in student workload within a few years of converting to a semester calendar.
- Savings.
  - *Fewer administrative cycles.* Initial savings may be realized in fewer administrative cycles per year (from three quarter terms to two semester terms)

of various university operations and activities (e.g., course registration, residence hall move-in, TA training). Other universities have not documented major savings, but they do report improvement in quality of services due to more time for operations in each term. Given others' experience, an estimate for systemwide annual savings from fewer administrative cycles should be conservative: \$250,000 to \$500,000 per campus or \$2 to 4 million annually for eight campuses at full implementation.

- Shorter academic year. Long-term savings may emerge from a shorter academic year – the semester calendar is shorter than the quarter calendar, between six and ten or more days shorter.
- Reduced student attrition. Another savings may result from reduced student attrition – the University of Minnesota reported that the drop in student credit hours between semester terms was eight percent, while the drop in student credit hours on the quarter calendar was double that, eight percent from fall to winter quarter, and eight percent from winter to spring.
- Cross-campus programming. The greatest savings may be found in crosscampus cooperation and leveraging, which would have to be pursued aggressively to be realized. For example, an under-enrolled program at one UC campus could be eliminated and made available online at another campus; or over-enrolled courses (in particular fundamentals classes such as Econ, Chem, Physics, Sociology) could be offered online at multiple campuses.

#### Challenges:

- *Curriculum rewrite.* Course curricula will have to be rewritten to accommodate a twoterm instead of a three-term academic year. Institutions that adopted new academic calendars noted that the overhaul of course curricula was one of the major challenges – and rewards – of calendar conversion. In the few post-conversion institutional reports that are available, universities indicated that the curriculum rewrite posed a burden for faculty but led to stronger curricula that were coordinated across majors and departments.
- Academic Senate support/opposition. Reports on calendar conversion prepared by UCOP in 1994 and by UCLA in 2003 noted that, in light of the cost and effort involved, and in the absence of compelling evidence of pedagogic, financial, or intercampus/intersegmental advantages, faculty would oppose conversion to a systemwide calendar. That opposition is likely to be greater today as faculty face pay cuts, furloughs, and decreased campus services.

#### Next Steps for Implementation:

• *Policy approval process.* The authority for setting the academic calendar is specified in the Standing Orders of the Regents, section 100.4(h): "The President shall fix the calendar of the University, provided that no session of instruction shall be established or abolished except with the advice of the Academic Senate and the approval of the Board." Any major calendar change would, therefore, require the approval of both the Academic Senate and the Board of Regents, a process that typically takes at least two years.

• *Preparation period.* Once a calendar change from the quarter to semester system is approved, the Office of the President and campuses would need an additional time period in which to prepare and implement the calendar conversion process. For example, courses will need to be redesigned and re-sequenced to fit a semester, rather than quarter schedule, using the divisional Academic Senate process for course approval. The University of Minnesota developed a four-year conversion schedule to implement its calendar change in 1999, and in a 2002-03 study UCLA estimated a need for at least a three-year preparation period for the semester conversion process.

#### Other Options Considered:

• Convert all UC campuses to a quarter calendar. The majority of UC campuses currently follow a quarter calendar. Converting the two semester campuses – Berkeley and Merced – to a quarter calendar would still afford the benefits of a calendar alignment across UC. However, as the majority of CSUs, community colleges, and AAU institutions operate on a semester system, and the trend among institutions undergoing conversion is from quarter to semester, UC would lose the benefits that a semester calendar would provide in terms of coordination with other institutions and easing articulation and credit transfer.

#### Recommendation 5: Increase successful community college transfers to UC.

Increasing the number of CC transfers will advance the UC's mission under the Master Plan, improve the demographic representativeness of our campuses, and reduce enrollment pressure on impacted general education courses. Improving the success of transferees by improving time to degree and other supports will improve the efficiency of "B.A. production" by UC. The subsidiary recommendations below would generate multiple benefits, supporting other aspects of the Commission's overall package.

#### **Description and Rationale:**

- 1. Require that all campuses [*viz.*, the nine "comprehensive" campuses] adopt a semester calendar rather than "quarters" to more generally align with the California Community Colleges (CCC) and the California State University (CSU), and thereby smooth articulation of course content and credits. Implementation in or before Fall 2014.
- 2. Require that all campuses recognize the common course numbering at the CCCs (in progress), using the common course descriptors, as opposed to individual course outlines, to determine transferability and applicability to degree requirements (i.e., articulation).<sup>\*</sup> Implementation in or before Fall 2014.
- 3. Reinforce systemwide commonality of the treatment of transfer credit to be counted towards graduation requirements across the system. Allow that there be a rebuttable presumption that identifies lower division major preparation courses be counted towards fulfilling the requirements of the major, provided that a department or program might require that a transfer student take a limited number of credits of coursework to fill critical gaps in preparation. The presumption of credit towards degree would be lifted on a case-by-case basis, on petition of the department, by the campus Chief Academic Officer and only for compelling reasons. Implementation in or before Fall 2014.
- 4. Dramatically expand deployment of online, UC-approved, transfer-credit lower division courses, delivered by UC Extension or CCs. This will provide broader access to high-quality lower division credits, even at CCs badly strapped for instructional resources and juggling multiple education and training missions.
- 5. Instruct the Academic Senate and President to work with the CCCs and the CSU to explore creation of a "Transfer A.A." degree at community colleges that would include a common set of General Education courses as well as a specified number of units of lower division major preparation. The Associate Degree for Transfer would not guarantee admission to all majors or campuses, but would guarantee "junior status" at the receiving institution.

#### Explanation:

• *Efficiency and Time-to-Degree*. When departments across the UC system treat a transfer student's courses for purposes of fulfilling departmental requirements for their

<sup>&</sup>lt;sup>\*</sup> This recommendation is a generalization of the work on ASSIST, California's Articulation System Stimulating Inter-Institutional Student Transfer, and the C-ID Project.

chosen major differently, it may delay graduation or lead to accumulating more credits than the degree ordinarily requires, especially for students who simultaneously prepare for multiple campuses or majors. This costs the student time and money, and reduces the "efficiency" of the University. Efficiency means improving time-to-degree for the same expenditure, which would educate more students and thereby improve access. Taken as a whole, this recommendation might produce sufficient efficiency gains to permit some increase in the transfer population without significantly reducing the number of first-time freshmen. (Estimates are very uncertain.)

- *Transparency and Coordination.* Common course-numbering throughout the CCCs, and perhaps all segments, would greatly help CC students trying to understand what they must take to become transfer-eligible, in the field of their choice. This supports a "transfer culture" and also improves time-to-degree by "wasting" fewer credits. The same course identification tool, especially if combined with online or distance education, would facilitate potential UC transfer students enrolling in courses delivered on another campus and similar multi-campus collaborations in instruction. Campuses would be required to map their course numbers into the offerings contained in the central numbering system.
- *Credit Towards Major.* Simply put, the goal is to place the emphasis of the value of a UC education on the upper division coursework. To improve the transparency of the transfer pathway, the burden should be on the receiving institution to demonstrate why a transfer-eligible credit accepted at one UC campus should not also count towards degree requirements in the major at that campus. The recommendation provides flexibility for the department to fashion and require a gap-filling offering, perhaps tailored to small groups of transferees.
- *Transfer A.A. Degree.* Transparency for transfer-seekers would be further aided by creating this A.A. degree, based on work toward a state-wide common current general education curriculum. Perhaps even more important, adding a specific credential to demarcate this educational attainment would likely have market value for students and also provide some focus for the curriculum at CCs seeking to enhance their transfer culture.
- Online. UC-designed online offerings may be able to bridge the irreducible "confidence gap" UC faculty seem to hold towards CC offerings, and at the same time mitigate CC capacity constraints.<sup>†</sup> It will also improve the transparency of the "transfer credit" issue for students, and expand access to qualifying courses.

#### Fiscal Implications:

- Semesterization:
  - Information systems modifications. Campus information systems, such as student records, course scheduling, and financial aid systems, would require modifications to accommodate the conversion to the semester system. Systemwide estimate: one-time costs over the implementation period of \$15-20 million.<sup>‡</sup>

<sup>&</sup>lt;sup>†</sup> Of course, there is also a confidence gap for online offerings. The number of such credit-bearing courses across UC already number in the hundreds, and will likely increase dramatically in the coming years as the Academic Senate develops confidence in its ability to control quality.

<sup>&</sup>lt;sup>‡</sup> In 2002-03, UCLA estimated these systems modification would cost \$2.0-\$2.5 million for their campus.

- *Fewer operational cycles.* Cost savings may be realized by a reduction in the number of cycles per year (from 3 quarter terms to 2 semester terms) of various university operations and activities (e.g., course registration, residence hall move-in, TA training). Other universities that have recently converted have not documented major savings, but do report quality improvements in services due to having more time in each term. Given this experience, the system-wide annual savings estimate is very conservative: \$250,000 to \$500,000 per campus or \$2 million to \$4 million annually for 8 campuses at full implementation.
- Efficiency and Time-to-Degree Gains Generally. A conservative estimate of progress for this recommendation would be that 5 to 10 percent of transfer students would graduate one quarter earlier than under current policies. That would allow UC to educate 650 to 1,300 more transfers at no additional cost. It would save families (or financial aid programs) around \$13,300 for one less semester of attendance.<sup>§</sup>
- *Course Numbering/Articulation.* This recommendation would require a one-time investment of approximately \$3 million, and annual maintenance of no more than \$1 million distributed system-wide. However, these costs should be netted against savings that might result from improving time-to-degree efficiency, and savings from curricular consolidation or streamlining enabled by cross-registration and technology. No estimate for these savings.
- *Technology.* Online offerings by UC Extension will easily produce revenue, net of production and delivery courses. No estimate available.

#### Challenges:

- Academic Senate support/opposition:
  - Components of the Academic Senate have taken up the semesterization issue several times over the past 25 years,<sup>\*\*</sup> almost always concluding that the status quo, including the principle of campus-level decision, better serves the University's mission. For example, in 2003, a majority of UCLA faculty voted against semesterization, stating that "the quarter calendar best serves our tripartite mission of teaching, research and service."
  - The Academic Senate has had a mixed but generally negative view of common course numbering. The current statewide project in this arena, C-ID, is a new model with significant potential to streamline the articulation function but would require significant up-front participation by UC faculty to approve course descriptors, then on-going review/maintenance as is the case now.
  - Proposal 3, concerning credit towards the major, is problematic if implemented in a way insensitive to faculty prerogatives and academic judgments. The challenge is to strike the appropriate regulatory balance, as well as an accommodation between faculty judgments and the goals of the student and of the UC system more globally.
- *Resources.* This recommendation entails modest initial investments and limited ongoing expenses, offset by financial benefits that are all but impossible even to estimate

<sup>§</sup> UC awards about 43,000 BA degrees a year, with 30 percent coming from transfers or about 13,000. 5 to 10 percent would be 650 to 1,300 students

UC Berkeley converted to semesters in 1983-84 and UC Merced began on a semester calendar

with reasonable confidence. They would, however, present a means of stabilizing and enhancing the transfer mission and our efficiency goals even in the face of continuing budgetary challenges.

#### Next Steps for Implementation:

- Semesterization:
  - Policy approval process. The authority for setting the academic calendar is specified in the Standing Orders of the Regents, section 100.4(h): "The President shall fix the calendar of the University, provided that no session of instruction shall be established or abolished except with the advice of the Academic Senate and the approval of the Board." Any major calendar change would, therefore, require that the President consult carefully with the Academic Senate and have the support of the Board of Regents.
  - Preparation period. Once a calendar change from the quarter to semester system is approved, the Office of the President and campuses would need an additional time period in which to prepare and implement the calendar conversion process. For example, courses will need to be redesigned and re-sequenced to fit a semester, rather than quarter schedule, using the divisional Academic Senate process for course approval. The University of Minnesota developed a four-year conversion schedule to implement its calendar change in 1999, and in a 2002-03 study UCLA estimated a need for at least a three-year preparation period for the semester conversion process.
- *Requirements for the academic degree fall under faculty purview.* Request that the faculty initiate a review of streamlined transfer preparation pathways from California Community Colleges to the University that would include the use of descriptor-based articulation, the development of a common GE pattern across CSU and UC, and the possibility of UC's acceptance of an appropriately designed Associate's Degree for Transfer (in collaboration with CCC and CSU faculty) with the goal of implementing approved changes no later than Fall 2014.

## Recommendation 6: Accelerate and broaden the pilot program on online instruction.

Eventually, there will be online credit-bearing courses and B.A. degrees in the so-called quality sector. That much seems certain. The questions are: Who will develop and deploy the first successful model, when will they do it, and can it be at a scale sufficient to make a meaningful difference in access to higher education. The Commission's proposed answers are: *UC should be first, as soon as possible, and our ambitions should err on the side of boldness*.

The UC Office of the President is raising external funds and preparing to launch a Pilot Program to develop 25 to 40 very high quality online courses for asynchronous delivery of lower division courses. The courses will be primarily the "gateway", "impacted", and general education courses with the heaviest enrollments system wide, and in most demand by community college students planning to transfer.

In addition to state of the art online video material, the courses will use the latest social networking software, videoconferencing with graduate student instructors (GSIs), innovative forms of online coaching, and so forth. To create and deliver courses, the Program will award grants to UC faculty with stellar teaching records using a competitive RFP process. The grants will include funding for summer salary, or for teaching relief. Each course must be approved through the normal Academic Senate process, and a joint Administration-Senate advisory panel has been formed to help guide the project, especially in the design of an evaluation.

The single most important question to be answered is whether this mode of delivering instruction can be done at a level of quality equal to, although different from, traditional oncampus instruction. Additional study questions include production costs, administrative systems, revenue potential, GSI training, and scalability.

#### **Recommendation Elements:**

- 1. The Regents should instruct the President and Senate to execute the Pilot Program on an urgent basis. The Education Policy Committee of the Regents should review the progress of the Pilot Program at each of its meetings.
- 2. The Pilot Program must give particular attention to answering questions concerning quality, the possible benefits to improving on-campus programs, and the measures necessary to do on-line education on a large scale in order to serve people not enrolled on campus. These online audiences might include, for example, community college students, people in need of credits for degree completion, and enrolled UC students who cannot be on campus full time for personal or financial reasons.
- 3. The President should enter into appropriate commercial relationships or contracts to expedite the Pilot Program. For example, some portion of the Program may be funded as an unsecured loan to be repaid if a follow-on project at scale yields net revenue.
- 4. In reflection of the University's historic leadership in support of open access forms of scholarly communication and its public service mission, the finished content of the Pilot courses will be available at no cost for use by accredited public or non-profit institutions and by individuals.
5. The President and Academic Senate should make *best efforts* to report the results of the Pilot Program to the Regents no later than September 2011.

# Discussion:

- "Elite" higher education increasingly means not only distinctively *excellent* but also *exclusive* and even exclusionary. An aspect of our public mission, however, is to make access to excellence inclusive despite myriad challenges. Online delivery may offer an affordable solution, although that excellence will "look" quite different.
- It will require investments of several billion dollars to create the bricks-and-mortar capacity to serve 12.5% of high school graduates 10 years from now. It is unrealistic to expect that the state will provide those resources, or that private donors will provide them, in addition to the appropriations and donations needed to sustain access and excellence for the university system we have today. This shortfall is even more pronounced if one takes a more expansive notion of UC-eligible including, for example, transfer, part-time and "non-traditional" students.
- Creating 25-40 UC-quality courses will generate many benefits, among them:
  - online offerings will help participating campuses reduce the incidence of impaction, offer summer or evening sessions, improve time-to-degree, and "share" offerings with other campuses;
  - online offerings can be made available to community colleges, high schools, and extension students; they could be delivered through University Extension or otherwise;
  - online offerings might facilitate a 3-year B.A. degree, or a "semester online" program analogous to a "semester abroad"; and
  - the Pilot will guide policy and design decisions about later phases of a still greater online effort by UC, e.g., an online "transfer A.A." degree delivered in collaboration with the community college system.
- The planning effort addresses the chief problems encountered by others in this arena, including issues of faculty support, funding, and clarity of goals. The analysis has been ongoing since Spring 2009, involving UCOP staff activity as well as Senate committees.

# Fiscal Implications:

- We recommend that the costs of the Pilot be raised from donors or, if appropriate, investors. The funding must cover all the costs of building, delivering and evaluating the 25-40 courses, including faculty compensation or release time.
- The intellectual property will be "open" in some fashion. Nevertheless, significant revenues are possible if a course is actually *delivered* – i.e., offered with credit instructor contact, grading, admission/enrollment machinery, etc. – to people not already enrolled at UC, or not simply diverted from University Extension. We expect substantial revenues from the follow-on work, but not from the Pilot.
- The costs of delivering an online course should compare favorably with that of delivering a traditional course, but we do not seek significant changes in total expenditures

because those faculty who are freed up from teaching because of an online alternative will presumably be redeployed to other teaching duties, such as lower division seminars, specialized upper division courses, or supervision of student research.

#### Challenges:

These are numerous but tractable especially given the high level of consultation and engagement that is already in place, and the expressed willingness to move forward with the Pilot as defined (the April 2010 Academic Council endorsement is particularly important in this regard). Challenges include:

- Absence of any agreed upon pedagogical or technical framework that can ensure courses are developed to emphasize modularity, platform independence, and scalability.
- Absence of any agreed definition of educational quality or mechanisms for assessing learning effectiveness of online as compared to traditional forms of instruction.
- Absence of any agreed upon understanding about how to review an online course for the purposes of its Senate approval; the criteria that will be used, and the stage of course design/development that would be required to trigger a review.
- Challenges inherent in reviewing and approving courses on a systemwide as opposed to campus-by-campus basis as may be useful in developing courses that are routinely made available across or between campuses.
- Underdeveloped mechanisms for fostering collaboration of the substantial but highly fragmented expertise and the staff and technology resources that exist across the system.

#### Next Steps for Implementation:

- Preparation of a Regents item.
- Complete fundraising ASAP.
- Identify through competitively reviewed proposal processes, introduced as soon as funding is available:
  - Faculty interested in participating in the project by designing, developing, and offering online courses for credit bearing instruction and participating in programmatic evaluation of cost, learning effectiveness, etc.
  - Education technology (course design and development) expertise to support the project, develop appropriate standards, facilitate sharing of best practices.
  - A research and evaluation group that can design and, with the faculty course developers, implement a common assessment framework to gather data about learning effectiveness, cost, etc.
- Assemble a small number of dedicated staff to drive the Pilot under the direction of the Vice Provost for Academic Planning. The staff need not be located in Oakland.

# Recommendation 7: Initiate planning for a coordinated approach to the delivery of online instruction.

To reiterate the recommendation for an expedited Pilot Project for lower division online courses:

Eventually, there will be online credit-bearing courses and B.A. degrees in the socalled quality sector. That much seems certain. The questions are: Who will develop and deploy the first successful model, when will they do it, and can it be at a scale sufficient to make a meaningful difference in access to higher education. The Commission's proposed answers are: *UC should be first, as soon as possible, and our ambitions should err on the side of boldness.* 

We must plan assuming an indefinite period of serious financial pressures. Moreover, with or without revisions to the Master Plan, there will be growing political, economic and social demands for undergraduate spaces. Access to excellence is already too limited, and the future will be worse absent a combination of transformation and innovation – in both how we deliver on our mission and how we fund it.

The Pilot Program is an opportunity to begin a dramatic move forward in this domain. This recommendation is that we move in parallel with detailed planning for follow-on efforts that leverage in a coordinated fashion the availability of online credit-bearing courses developed by UC.

This will enable the Regents to move quickly towards a more ambitious vision, *if and only if* the results of the Pilot are encouraging.

#### **Recommendation Elements:**

- 1. The Regents should direct the President to prepare plans, including organizational and business options, that leverage online courses developed by UC faculty and in a coordinated or systemwide fashion seek to:
  - expand substantially the number of UC-eligible students with access to UCquality courses and degrees beyond the capacity of our on-campus programs;
  - generate a large new revenue stream to help sustain access and excellence in our on-campus program; and
  - o drive innovation in instruction.
- 2. Those plans should look at models, and reflect different possible outcomes of the pilot investigation including:
  - Senate approval of or interest in exploring online B.A. or other degrees.
  - Senate approval of or interest in exploring the use of online courses to contribute a proportion of undergraduate credit hours in selected majors.
  - Use of online courses for credit that may be transferred to and used at third party institutions.

- 3. Such plans will be developed with the understanding that implementation will be *contingent on,* inter alia, *the demonstrated excellence* of the online content developed in the 2010-11 Pilot Program.
- 4. The Senate should establish special processes and committees as necessary to analyze, deliberate and advise the President expeditiously on this undertaking.
- 5. The Education Policy Committee of the Regents should review the progress of this effort at each of its meetings.
- 6. The President should make recommendations to the Regents on whether and how the University will implement and institutionalize online instruction no later than Fall 2011.

#### Discussion:

- UCOP Academic Planning has developed a detailed, step-by-step, *draft strategy* for leveraging online instruction to expand access to UC-quality courses and degrees and generate revenues through online instruction, returning revenue to support core research and teaching. The strategy envisaged different possible outcomes or trajectories as identified in 2 above. Progress in moving forward along any trajectory is predicated on answering a set of questions about quality, business model, market analyses, faculty engagement, etc. This recommendation is to elevate and continue this planning effort, aiming for completion contemporaneously with completion of the Pilot.
- A coordinated or systemwide approach will be more cost effective in delivering educational programs which, owing to their reliance on rapidly evolving information technologies and on high-touch interaction with potential applicants as well as with enrolled students, requires scale that is not currently available and very difficult to build on a campus-by-campus basis. While commercially managed educational service providers are available to campuses or academic departments to support local efforts with scaled capacity, they typically operate under long-term exclusive revenue sharing relationships. While promising a quick start, they slow institutional capacity building which is likely to be essential over the longer term.
- Accordingly, another recommendation proposes an aggressive strategy for University Extension (UNEX). There has been historic Senate opposition to a degree-granting role for UNEX. In this context, however, there would be advantages to using UNEX as the organizational base for the online instruction program, and exploring joint branding of degrees with the individual campuses.
- A coordinated approach will not impede campus-based or departmental efforts. On the contrary it may be envisaged as a central utility service that all require in order to succeed, though none can afford as effectively acting independently. In this regard, a coordinated utility capable of supporting online instruction at scale may adopt the model implemented with the California Digital Library – a service that specifically supports local campus efforts.
- Incremental advances without embracing and announcing a vision is certainly a possible approach. It would have fewer internal political and bureaucratic risks. On the other hand, a clear vision of a University-wide effort that aggressively pursues opportunities inherent in online education would likely mobilize support from potential donors, the Legislature and the general public. It will also:

- Provide a focal point that would enable the University to develop, coordinate, and coalesce the enormous but highly fragmented assets, particularly those in University Extension, that uniquely give UC substantial institutional capacity to be successful in online instruction.
- Provide a powerful vehicle for underscoring UC's commitment to access for all Californians. This bold vision articulates the possibility of serving UC-quality students not only from California, but also from Sheboygan and Shanghai.

### Fiscal Implications:

- We believe a coordinated approach to the delivery of online courses or degrees that leverages the brand of UC and its campuses, will solicit virtually unlimited worldwide demand from highly qualified applicants.
- Obviously a critical variable in the financial model is tuition (net of average financial aid grant). While many have suggested that tuition be equal to tuition for on-campus degrees, others have suggested lower numbers, especially for California residents. Whatever the level, however, there would be financial advantages to cyber-students because they would presumably be staying at or near home, and in many cases working part time.
- Online bachelor's degrees would require, at startup, approximately 100 courses including those produced in the Pilot. With conservative assumptions, financial sustainability could be achieved with as few as 10,000 students if tuition is comparable to the on-campus program.
- Net revenue in the longer run would be comfortably into 9-figures, provided there are satisfactory academic personnel systems for providing UC-quality instructors-of-record and section leaders.

#### Challenges:

- The principal difficulty in moving expeditiously, as proposed here, is securing the needed shared governance support.
- The organizational arrangements, including Senate supervision of curriculum, degree requirements, and admissions.
- Distribution formula for net revenues to the campuses.

#### Next Steps for Implementation:

• Preparation of a Regents item.

# Recommendation 8: Increase faculty salaries from additional non-state resources where possible.

The recommendation aims to increase faculty salaries with non-state funding sources, by providing an alternate compensation plan that allows sources of income outside of the University to supplement faculty salaries, while remaining compliant with University policy and federal and state regulations. The proposed plan will allow adding a salary increment above the salary provided by the current faculty compensation plan.

### Rationale:

- By our analysis, UC faculty salaries lag the Comparison 8 institutions by 11.2%, a gap that is expected to increase over the next year(s) if no action is taken to address market competitiveness.
- The Health Sciences Compensation Plan (HSCP) and Guidelines on Outside Professional Activities (APM-670) has achieved the goal of combining state funding with other income, such as contracts, grants, and clinical revenue. Features of the HSCP may be applicable to a new compensation plan for some other UC faculty.
- The use of non-19900 funding sources is allowed by policy (APM-190-F), within certain limits, to raise ladder-rank faculty salaries. Sources allowed in current policy are: endowment income; fees for selected professional school students; and self-supporting professional degree program revenues.

#### Impact on Access:

• The quality of the University is defined by its superior faculty and the quality of studentfaculty interactions. An additional compensation plan will help UC recruit and retain the highest quality faculty, which in turn, will improve access for the brightest and most diverse student body.

#### Impact on Quality:

• Current state funding levels leave UC vulnerable to loss of faculty. A new approach will provide the ability to increase salaries, without jeopardizing the future viability of the schools or disciplines, and can improve faculty recruitment and retention efforts.

#### Fiscal Implications:

- Data are required to assess the financial impact of the new compensation plan and model.
- The new plan can have no adverse financial effect on UCRP; fund sources should be directed appropriately to either UCRP or a new DCP plan for the extra compensation under this Plan.

- In this plan, a faculty member's salary increment will be negotiated annually, in light of available funding sources.
- The treatment of income received from outside professional activities will be addressed.

#### Challenges:

- The balance between teaching, research, and University and public service responsibilities must be maintained. Teaching effort must not be compromised.
- It is essential to comply with regulations governing the use of contract and grant funding to support salaries.
- Academic disciplines offer varying opportunities to raise non-state revenue. Careful consideration will be given to issues that arise between those faculty who, by virtue of discipline and trends in funding, can participate in such a plan, and those who cannot.
- Communications need to describe the approaching crisis caused by non-competitive faculty salaries and to mitigate against any adverse effect on current state-funding.
- APM-190-F will require updating if a compensation plan is approved; if additional types of revenues are identified to support ladder-rank salaries; and to address existing policy limits governing the ratio of non-19900 to 19900 funding allowed to support salaries.
- Several committees and groups are addressing the issue of the faculty salary lag: work is well-underway by Senate and Administrative groups at individual campuses and systemwide to analyze the problem.
- HSCP faculty members must deposit the HSCP income gained from outside professional activities (OPA). Equity issues could arise if general campus faculty may retain income from OPA.

#### Next Steps for Implementation:

Briefly, and in no specific order:

- Produce analytic work to measure implications of new model.
- Develop final proposal and draft new Academic Personnel Policy to circulate for UCOP, and systemwide Senate and Administrative review.
- Begin communications with State, Federal and Regental authorities to introduce the concept and analytic model.

# Recommendation 9: Establish a Presidential initiative to drive systemwide efficiency measures in our administrative and financial practices

"Harnessing the power of the system' applies not only to the academic enterprise, but also to the business practices of the University... [Operational efficiency] will require nothing short of a fundamental change in the University's culture..."

- <u>UC 2025: The Power and Promise of Ten</u>, Report to the President from the UC Long-Range Guidance Team

This recommendation follows Recommendation 2 of the Funding Strategies Work Group. Through this initiative, in five years the University will redirect at least \$500 million annually to support core academic and research activities from a combination of cost savings, cost avoidance and revenue generation. Based on the University's funding pattern, 60 - 70% of this amount is expected to be from UC core funds such as student fees, state general funds and the UC general fund.

The focus of this recommendation is not a justification of the need for increasing operational efficiency, as this has been demonstrated consistently throughout the history of the University with such recent reports as <u>UC 2025</u>: The Power and Promise of Ten, the Monitor Group Report to the Regents: <u>University of California Organizational Restructuring Effort</u>, and the Bain Report: <u>Achieving Operational Excellence at the University of California, Berkeley</u>, to name a few. Rather, this recommendation recognizes the complexity of a vast organization such as the University of California and the resistance to change that reflects a fragmented infrastructure, inefficient procurement practices and energy use, capacity underutilization, and increased bureaucracy within certain campuses.<sup>1</sup> Formally establishing this type of authority may be best achieved through an amendment to Standing Order 100.4; this route should be explored with assistance from the Office of General Counsel.

#### Rationale:

 <u>Financial and administrative restructuring can direct more resources to academic and</u> <u>research functions</u>. Sacrificing the academic and research quality of the University of

California is not an option. Recently the Regents sent a strong message to this end and endeavored to meet the challenges of growing demand, cost increases, a rapidly changing technological environment and reduction of state support through <u>mandatory</u> increases in student fees. While universally unpopular, the Regents acted out of necessity "to turn to every practical source of revenue and to balance the budget." It should follow that we mandate the adoption and sharing of

"I do not know of any organization that achieves budget discipline from the bottom up. We need to be sufficiently top-down to get the job done. Nobody's going to volunteer to make the kind of changes that are required."

- Chris Edley, Special Advisor to the President, addressing UC Commission on the Future, March 23, 2010

best administrative practices as well, even when they might seem unpopular or there exists a culture that is resistant to change. Simply kicking the can down the road to

<sup>1</sup> These specific examples have been provided by the Bain Report – "Achieving Operational Excellence at the University of California, Berkeley" and are also conveyed by other campuses such as UC Davis.

avoid making tough decisions not only devalues the costly and important effort already made to identify efficiencies, but risks our competitive advantage as the world's leading research institution when the life blood of precious revenues are diverted to areas of the University other than its core mission of teaching and research.

• <u>UC must transition from idea to implementation</u>. Now is the time for action and speed is essential. We do not have the option to wait for another report to tell us what we already

"While common IT systems promise to save substantially on redundant investment, they cannot be implemented unless and until business practices are aligned behind a standard on which all can agree (or at least agree to modify in some consistent way). The effort promises not only to reduce costs but to increase transparency in several areas, such as admissions and compensation."

- UC 2025: The Power and Promise of Ten

know. While the Commission evaluates this recommendation, real dollars are flowing out of the UC system that would otherwise be captured and realized through the adoption of best practices. These dollars are vital support needed to maintain UC's dominance and excellence in its core mission of teaching and research. In addition, the borrowing costs of the University remain near historic lows.

Investments in technology and enterprise systems can yield long-term savings in the operating budget, particularly when financed with these current low rates. The Commission should also recognize that each campus is unique and periodically there may be exigent circumstances whereby greater savings may be achieved by using innovative alternatives to the established best practices. Some of these measures lend themselves to universal implementation and application, where individual campuses can hurt the system by opting out. Other measures require tailored solutions, reflecting the specific circumstances of each campus. It should be made clear, however, that the President is the sponsor of any initiative to adopt best practices, and accountability will be upheld as outlined in Recommendation 2.

# Impact on Access:

• To the extent that administrative costs can be reduced and operations improved, resources will be redirected to other functions.

# Impact on Quality:

 The impact on the quality of services for each campus will be evaluated on an individual basis. Adoption of administrative best practices will not be associated with a reduction in quality. However, the campuses and Chancellors must demonstrate to the President any degradation in quality in order to "opt out."

#### Fiscal Implications:

 Through this initiative, in five years the University will redirect at least \$500 million annually to support core academic and research activities from a combination of cost savings, cost avoidance and revenue generation. Based on the University's funding pattern, 60 - 70% of this amount is expected to be from UC core funds such as student fees, state general funds and the UC general fund.  While the net cost implications of this recommendation are minimal, the impacts of sharing and implementing best practices have tremendous potential. As identified in Recommendation 2, there are tangible opportunities for both long term cumulative savings and "quick wins" such as the recommendations outlined by the UC Work Group on Administrative Efficiencies titled "Building Administrative Efficiency – July 2008" and chaired by Vice Chancellor Sam Morabito of UCLA. Specific examples of these and other initiatives are provided below:

Functional Area	Strategies/Initiatives	Potential Annual Savings/Cost Avoidance
Procurement / Strategic Sourcing	<ul> <li>Shared credit card payment gateway</li> <li>Collaborative RFPs for similar services</li> <li>Require EFT for vendor contract payments</li> <li>Common CONNEXXUS travel program</li> <li>eProcurement implementation at every campus</li> </ul>	\$60 - \$120 million
Library Administrative Efficiencies	<ul> <li>Technical and cataloging services</li> <li>Collection management</li> </ul>	\$65 million
Financial Management	<ul> <li>Further restructuring of debt and creation of Capital Bank</li> <li>Expansion of TRIP asset management program</li> <li>Development of new philanthropy models</li> </ul>	\$50 – \$100 million
Information Technology	<ul> <li>Systemwide data warehousing</li> <li>Shared emergency recovery services and research computing</li> <li>Consolidate bidding for telecom centers</li> <li>Intra-campus consolidations</li> <li>Centralized help desk support</li> </ul>	\$20 - \$30 million
Payroll	- UC-PPS Initiative	TBD
Risk Management	<ul><li>Policy restructuring</li><li>Captive/self insurance</li></ul>	TBD
Human Resources	<ul> <li>Common HRIS system</li> <li>Expansion of benefit service center</li> </ul>	TBD
Energy	<ul> <li>Expansion of Strategic Energy Partnerships with IOU's</li> <li>Development of systemwide energy program</li> </ul>	TBD
Legislative Relief	<ul> <li>Stull Bill revisions</li> <li>Other legislative relief issues</li> </ul>	TBD

# Challenges:

- Resistance to change.
- Insufficient information to determine actual savings versus cost avoidance.
- Specialized programs and practices make certain campuses inflexible.

# Next Steps for Implementation:

• Adoption of Recommendation 2 from the Funding Strategies work group followed by Regents action with delegation to the President to mandate campus adoption of best practices.

# Other Options Considered:

• none

# Recommendation 10: Implement UCSIP program to fund strategic investments.

"...[W]e will need to make significant investments in automation, process improvements, people, and training, many of which are long overdue. We are exploring alternatives for low-cost financing that will enable us to borrow the money needed to make these investments soon in order to produce real savings quickly."

- Chancellor Robert J. Birgeneau's Response to Operational Excellence Report, May 3, 2010

This recommendation follows Recommendation 2 of the Funding Strategies Work Group. UCSIP stands for "University of California Strategic Investment Program." At its most basic level, it is a financing program. As such, it leverages the University's high credit rating to make low borrowing costs available to the campuses for a broader range of purposes <u>beyond</u> solely capital construction. In particular, the three areas funded by UCSIP would be: (1) capital equipment purchases, (2) faculty recruitment, and (3) operational system implementations. These three segments of UCSIP are described in further detail below:

#### CapEquip (Capital Equipment Financing)

Purpose:	Equipment acquisitions in lieu of third-party leasing
Strategic Goal:	Cut costs by leveraging economies of scale inherent in UC debt program
Size:	\$200 million overall per year
Structure:	CP-amortizing loans
Rate:	4% (subject to annual review)
Max Term:	7 years
Debt Service:	Campus funds that formerly paid third-party lease payments
Distribution:	Campuses submit needs annually in March

### STARs (Strategic Teaching Acquisition & Retention)

Purpose:	Lab renovations/equipment specific to a single faculty recruit
Strategic Goal:	Maintain competitive research excellence and academic quality
Size:	\$20-\$50 million overall per year
Structure:	CP-amortizing loans
Rate:	0%
Max Term:	11 years average (15 years for lab renovations; 7 years for lab equipment)
Debt Service:	Principal paid by ICR (interest covered by the program)
Distribution:	Campuses competitively apply throughout the year

#### C3 (Cross-Campus Collaborations)

Purpose:	Regional centers of excellence and/or systemwide efficiency initiatives
Strategic Goal:	Cut duplication and increase systems commonality
Size:	\$20-\$50 million overall per year
Structure:	CP-amortizing loans
Rate:	0%
Max Term:	7 years
Debt Service:	Principal paid by savings (interest covered by the program)
Distribution:	Campuses competitively apply throughout the year

UCSIP is more than simply a financing program; it is also a mechanism that recognizes investments in UC's future. By incentivizing campuses to compete for low-cost or no-cost strategic-investment funding, the program rewards operational excellence.

### Rationale:

- For ten years or more, we have studied the obstacles to operational excellence. We know what needs to be done, but we have lacked the up-front resources required to make strategic investments. We have also inadvertently fostered a culture averse to risk-taking. When bad deeds go unpunished and good deeds go ignored, there is very little appetite for change. We have allowed this lack of resources and rewards to paralyze progress in many areas.
- By implementing a program that can not only finance a broad swath of needs but can also serve as a rewarding mechanism, we can remove at least part of the roadblock.

"The University's ten campuses rely upon numerous common administrative and business practices ranging from human resources to admissions and student records. Many have grown up to reflect variant local practice and so to require substantial and largely redundant investment in modestly divergent business systems."

- <u>UC 2025: The Power and Promise of</u> <u>Ten</u>

#### Impact on Access:

• A penny saved is a penny that can be invested in activities closer to our core mission. To the extent that administrative costs can be reduced and operations improved, resources will be preserved for other functions, including access and affordability efforts.

#### Impact on Quality:

• Lackluster administrative systems and an inability to compete for top faculty talent will degrade our academic performance. We must proactively adopt practices that acknowledge quality as a measuring stick for both academic programs and administrative operations.

#### Fiscal Implications:

- The CapEquip segment of UCSIP is by far the largest, committing up to \$200 million of the Regents' commercial paper program annually, as compared to \$20-\$50 million each for STARs and C3. CapEquip is also the only interest-charging segment under UCSIP. There are reasons for these differences:
  - The 4% cost of funds under CapEquip is a significant improvement over many third-party leases currently in place across the system bearing rates as high as 9.75%. Even if we assume third-party leases bear rates as low as 4.5%, CapEquip would still save the campuses \$1 million collectively in annual interest costs on \$200 million of equipment. The cost-saving aspect of CapEquip will incentivize campuses to use it.
  - It is important to note that the 4% cost of funds charged by CapEquip is 300+ basis points higher than the recent actual University cost of funds, which is currently below 1%. UCSIP can harvest the 300+ basis-point spread and use it

to build up a pool that will fund the interest cost on the two smaller segments, STARs and C3.

- For instance, if all three segments of UCSIP are utilized to their respective maximums in the first year (and actual cost of funds for the University remains at 1%), then CapEquip would net \$6 million for the UCSIP reserve fund. After paying \$500,000 in interest expense each for STARs and C3 (\$1 million total), the \$5 million remaining in the UCSIP reserve fund will then go on to fund future interest costs on STARs and C3, and will serve as a buffer against increases in UC's actual cost of funds.
- The 4% cost of funds on CapEquip can support the overall UCSIP program as long as the University's actual cost of funds on commercial paper remain below 3.2%. If the University's CP rate exceeds 3.2%, the CapEquip rate charged to campuses can be raised from 4% to whatever level would continue to support the initiative. However, it is not expected that the University's CP rate would exceed 3.2% for any prolonged period, as short-term tax-exempt market rates have historically hovered near 3.0%, and have averaged 2.9% over the last ten years.
- In short, UCSIP is a self-funding, breakeven program.
- In terms of savings produced long-term by UCSIP, some fiscal implications are clear-cut and others are less so:
  - First, CapEquip is a clear cost-cutting procurement measure, whereby campuses can save hundreds of basis points annually in financing charges, likely summing to \$6-8 million systemwide on an annual basis.
  - Second, the fiscal implications of the STARs segment is less clear-cut, but all would agree that competitive recruitment of top-flight faculty is integral to the University's ongoing academic and research success; slow degradation of academic and research quality caused by poor recruiting is a cost that almost no amount of funding could reverse.
  - Finally, the C3 segment will implement the systemwide commonality that the University severely lacks; efficient, common-language systems will enable the University to right-size itself in many ways – from procurement, to shared services, to headcount, etc. – resulting in immeasurable bottom-line savings. We are currently in discussions with one campus about a project that could serve as the pilot for C3 and hope to have an announcement about this partnership before July 1, 2010.

#### Challenges:

• Availability of funds is limited. UCSIP hinges on the University's access to low-cost capital-market funding, which is not endless. We must manage our available resources wisely and choose key initiatives that will deliver the biggest impact for the University.

### Next Steps for Implementation:

- The program's administrator will be the Chief Financial Officer at the Office of the President, in conjunction with the Executive Vice President and Provost and the Executive Vice President and Chief Business Officer.
- Guidelines for each segment CapEquip, STARs, and C3 will be drafted and approved at the UCOP level. This process is already underway and could be completed quickly with the right level of leadership attention. Subsequently, UCSIP can be rolled out as early as July 1, 2010.
- Alternatively, the CapEquip segment could be rolled out alone for the first year so as to build up the UCSIP reserve. Then in the following year, STARs and C3 could be implemented. This latter approach could serve as a conservative "test year" and provide funding assurance for a complete roll-out of the remaining two segments in Year 2.

# COUNCIL OF VICE CHANCELLORS (COVC) RECOMMENDATIONS TO THE COMMISSION ON THE FUTURE

Note: The Council of Vice Chancellors (COVC) has been asked to comment on the current recommendations made by various task forces. In the opinion of the COVC, the financial crisis demands that the initial recommendations be limited in number, of major consequence, and implemented in the near term. Each should be selected because it will maintain our standards for quality and access and will achieve consequential restructuring to either save costs or enhance revenue. This selection does not imply disagreement with the many other suggestions, many of which surely should be adopted. Rather, our focus is on those which seem to offer the strongest possibility to position the University appropriately in the near term.

- 1. The Regents should direct the Office of the President to adopt, by fiscal year 2012, a campus-based budgeting model, in which the Office of the President and Regents' affairs are budgeted through campus assessments.
- 2. The Office of the President will direct all campuses and the Office of the President itself to adopt a single payroll system for the entire system by fiscal year 2013 and work rapidly toward the elimination of other administrative redundancies in human resource systems.
- 3. The Regents should direct the Office of the President to coordinate with the campuses to provide, by academic year 2013, on-line courses that will satisfy the transfer articulation agreement with California Community Colleges, such that full satisfaction of the transfer general education core can be accomplished anywhere at any time. Continue timely exploration of online instruction in the undergraduate curriculum, generally as well as in self-supporting graduate-degree and Extension programs.
- 4. The Regents will establish a simplified and re-named fee structure by academic year 2013. The education and professional fees will be "tuition", the registration fee will be "student services" fee. When recommendation 1 is enacted, all fees will remain on the campus generating them. In the interim, there will be no change with respect to fees for professional students (i.e., the former professional fees will remain on the campus generating them) Furthermore, the Regents will adopt, by 2013 a multiyear fee schedule for undergraduate tuition, with fee increases set at less than ten percent a year for each cohort, subject to the declaration by the Regents of a fiscal emergency requiring the schedule to be temporarily modified.
- 5. The Regents will direct the Office of the President to aggressively pursue increases to research overhead recovery. The Regents and the Office of the President will engage public officials to ensure that the university receives fair reimbursement for federal grants and contracts (at least parity with private peer institutions) and the Office of the President will provide policy to the campuses limiting the use of university resources without fair overhead compensation.

- 6. The Regents will develop a multi-year advocacy campaign designed to generate both private and public support for the research and instructional mission of the university. Measurable benchmarks for this campaign, for both the private and public sector, will be developed by the Office of the President and provided to the university community annually.
- 7. The Regents will direct that each campus with undergraduate students will, by 2014, have a common, semester-based calendar. Further, the Regents direct the Office of the President to identify transition support for campuses changing to the semester system