

COMMITTEE ON PLANNING AND BUDGET
Report on Conditions & Strategies for Growth – May 2007

To the Academic Senate, Santa Cruz Division:

Abstract

This report presents an overview of how effectively the campus has coped with the rapid growth of the past decade. It begins with a retrospective assessment of the conditions placed on growth in the recent past and moves to an update on “Current Realities.” The bulk of the report addresses “Strategies for Growth” in the future, defining them in the context of different models of campus planning. In the sections on “Enrollment Management,” the report focuses on the planning and information needed to articulate the interdependencies between graduate and undergraduate enrollment growth and the changes necessary to achieve the campus goal of increasing graduate enrollments to 15% percent. This section offers a series of specific recommendations (in bold) and ends with key conclusions.

The working assumption throughout the report is the Committee on Planning and Budget’s (CPB) belief that the expansion of graduate enrollments should occur in a manner that at a minimum preserves the excellence of existing undergraduate and graduate programs. The expansion of graduate enrollments should augment the undergraduate experience at UCSC as well as the campus’s research enterprise. Whether the target is achieved sooner or later matters less than eventually achieving the goal in a manner consistent with excellence.

Introduction

In recent years, the UCSC campus has undergone rapid expansion, growing from an enrollment of 10,981 in 1998 to 14,122 in 2002, to the current 15,360. During those years, a campuswide process of academic planning was launched, which could not always keep pace with such rapid growth over a relatively short time. Various initiatives were explored to accommodate increasing enrollments, including the Silicon Valley Center and an expanded Summer Session that would contribute to year-round operations. Rapid growth of the campus coincided with times of budget cuts. Between 2001-02 and 2004-05, the campus received permanent budget cuts that resulted in permanent cuts to the academic divisions that ranged from three percent to five percent and to administrative divisions that ranged from five percent to ten percent. Meanwhile, the campus witnessed rapid turnover in top administrators. Since 2003, we have had four different chancellors and three different executive vice chancellors. At the same time, the Long Range Development Plan (LRDP), which sets the envelope for physical growth, had to be renegotiated as the campus approached an enrollment of 15,000, the maximum then allowed by the LRDP.

Senate Oversight During the Recent Past

Given all of these developments, the Academic Senate focused during this period on issues of growth, particularly on one major question: How to define acceptable growth

for the campus as a whole. To that end, the CPB has issued a series of reports, starting in 2001, on the principles used to guide the rapid enrollment growth experienced by the campus as well as the measures used to assess its effects. (See the following: Report #5 on the Santa Clara Valley Regional Center, May 2001, [AS/SCP/1312](#) ; Enrollment Management at UCSC: Planning and Information Needs, April 2002, [AS/SCP/1348](#) ; Campus Enrollment Growth and Infrastructure, January 2003, [AS/SCP/1373](#) ; Report on the Strategic Futures Committee/Long Range Development Plan Process and the Future of Enrollment Growth at UCSC, June 2004, [AS/SCP/1348](#)). The ultimate objective was to make future growth *conditional* on whether it would improve the campus.

As a result of Senate actions, the campus currently has in place two goals related to growth:

1. Increase the percent of graduate enrollments (from 8.7 percent in 2003, the year when these conditions were put in place, to at least 15 percent).
2. Increase capacity Instruction and Research (I&R) space (in line with UCOP's overall goal of meeting at least 80 percent of the guidelines set by the California Postsecondary Education Commission or CPEC). CPB further proposed that if the campus experienced continued degradation of its graduate/undergraduate ratio and in its capacity I&R space, the central administration should limit the growth in its undergraduate population. These principles were accepted by the Senate, and thereafter, the central administration agreed to a planned enrollment strategy consistent with the Senate's two conditions of growth.

The same determination to prevent rapid expansion from eroding academic quality at UCSC led to intensive Senate involvement in the vetting of the LRDP and the Environmental Impact Report (EIR). The Senate was concerned that appropriate metrics and analyses be used in determining the impact of growth. In April 2006, the Senate passed a resolution that made endorsement of the LRDP contingent on the Senate Executive Committee (SEC) reviewing and approving aspects of the plan.

Current Realities

We are at a critical moment in the history of the campus. The search for a chancellor is underway, and of the five deans, four are or will be relatively new to the campus. Two new deans (Division of the Arts and the School of Engineering) will join the administration in 2007-08, and the two deans (Divisions of the Humanities and of Social Sciences) who arrived last year are now articulating academic plans for their divisions. Equally important, we are entering a transitional phase in which the bulk of the growth in undergraduate enrollments is behind us. As the state experiences a flattening of the growth in University-eligible students, the University has begun to contemplate changes in admissions procedures that will have serious consequences for UCSC, possibly resulting in enrolling more students who lack the traditional levels of preparation for college.

This is the moment to assess our current conditions of growth, to consider supplementing them with additional conditions, and to think about overall strategies for growth. By conditions of growth, we mean factors that might serve as trip-points, indicating that increased enrollment is no longer advantageous. By strategies for growth, we mean factors that will allow us to make the best use of our resources in transitional times. Articulating strategies will help us to enumerate additional conditions that are both responsive to current needs and anticipate the future.

Strategies for Growth

The Senate has repeatedly affirmed that the academic mission needs to remain at the center of all discussions of growth. Measuring educational quality has two components: (a) instructional and (b) budgetary. What this means is that strategic campus planning must directly link academic and budgetary planning. Rather than merely asking what we can do with the dollars we have, we must also assess our needs and the costs of meeting them. We believe that future growth should be balanced between the enhancement of existing programs and the development of new programs, rather than simply favoring the new, as we have often done in the past.

The goal of the strategic academic plan should be to align student make-up with areas that we want to grow. At the same time, we need to monitor the effects on academic quality of rapid growth in the freshman-level enrollment of recent years, in order to identify areas of strength and potential growth as well as those areas in which educational quality may be deteriorating. This transitional period of slowed new growth provides the opportunity to assess and, if necessary, to mitigate the effects of past growth.

Given that steady state is at hand, and the next phase of growth may well be our last, it is time to develop new thinking that links enrollment *management*, as opposed to enrollment growth, to resource allocation. Rather than focus, as we have historically done, on raw numbers, the campus should instead work to accommodate and distribute our undergraduate student population. Redeployment of existing resources, rather than continued growth, must become the primary means of enhancing current strengths as well as developing new initiatives.

In the past, long-range campus planning was constrained by the way divisions competed for resources generated by the undergraduate enrollment growth that the campus had already experienced (i.e., enrollment-growth related resources are made available after enrollments have arrived). Moreover, state funds for each additional student FTE do not cover the full cost of instruction, and that rate (the “marginal cost”) has been steadily declining (see Figure 1, “Budget Gap”). The focus on new enrollment-generated resources means that less attention was systematically paid to accountability for the use of existing resources or of carry-forward funds. In all of these ways, the incremental funding model has thwarted adequate long-term strategic planning. The campus is now working to break through the limitations of this perspective, in order to cope with limited growth in enrollment while retaining flexibility as new opportunities present themselves. Instead of simply adding students across existing programs, future growth should be

targeted to the enhancement of existing programs and/or the development of new programs that would then accommodate and distribute the overall student enrollment.

Enrollment Management I: Capacity

Effective enrollment management addresses critical capacity issues including availability of programs, student demand, and capacity in terms of space. These key measures of educational quality enable us to assess how effectively we are delivering our programs, from General Education requirements to exit seminars for the majors. The Committee on Educational Policy (CEP) is currently conducting a major review of the overall effectiveness and structure of the campuswide writing-intensive (“W”) requirement. Other lower-division requirements in the different divisions may also be impacted. The campus appears to have a serious capacity issue affecting educational quality, with students in the first two years experiencing difficulties in enrolling in gateway courses and other prerequisites for the major. **We need to gather further evidence, in the distribution of students among majors and variation in time-to-degree, of which programs and majors are unable to provide required courses in a timely manner.**

Enrollment Management II: Undergraduate and Graduate Students

Effective enrollment management also links data on graduate students with data on undergraduate students. Although the campus has succeeded in adding new graduate programs and increasing the total number of graduate enrollments (see Figure 2, Ph.D. programs and Ph.D. degrees conferred), we have declined in the graduate-undergraduate ratio because of the number of new undergraduates enrolled (see Figures 3 and 4). **This outcome suggests that we need measures of critical mass in graduate programs over time, in addition to measuring the ratio itself. Comparative data on graduate enrollments targets and capacity should be collected by programs within and across disciplines.**

Considering graduate growth alone could produce a scenario in which the divisions that are slated for growth (PBSci and Engineering) miss their undergraduate enrollment targets but meet or exceed graduate targets (and, indeed, these divisions currently have the largest percentage of graduate students on campus). At the same time, and by various means, the other divisions maintain current undergraduate enrollments and current numbers of Bachelor's degrees. The result would be an unintended negative consequence: retention of undergraduates declines as they do not enroll as projected in the FTE-richer divisions and are unable to get their majors of choice in other divisions. Similarly, we need to track how we are spending freshman-generated dollars, to assess whether they are used to maintain and improve TA ratios and hence leverage a higher proportional growth in graduate support. Some graduate and professional programs will require an undergraduate component. There are specific areas in which synergies with new or existing undergraduate programs could be key components of a viable financial model of a graduate or professional program. Financial viability might be difficult to achieve for such programs if enrollment growth occurred in the absence of strategic academic plans. In the optimal scenario, UCSC could phase in undergraduate enrollment growth as a

component of a broader plan to fund specific graduate and professional programs, and only after the forward funded component has been committed by state or private sources.

Linking undergraduate and graduate growth should be done by division, and perhaps even by department. As freshman enrollments have grown, the number of graduate courses has increased, and while this is consistent with the goal of strengthening graduate education, the number of undergraduate courses taught has also been affected. The divisions could redress this imbalance and still follow campus goals of increasing graduate enrollments by increasing class size in carefully selected undergraduate courses and directing newly available instructional funds to provide adequate TA support for those large courses. **Among the mitigation measures that therefore must be taken at this critical phase is to increase graduate support, in the form of TAships, in order to protect the quality of undergraduate education. The campus does not want to produce a higher proportion of graduate students in a way that undermines the TA support of those same students and graduate programs.**¹

Beyond Enrollment Growth: Other Models of Campus Planning

Enrollment management is only one of several strategies to ensure that we use our resources well. Recognizing that enrollment funds are neither the sole nor sufficient source of revenue, the campus must plan proactively to use the financial resources that enrollment growth can generate in combination with other sources of funds that the campus actively seeks. This would require a more effective fund-raising operation, better linked to academic plans and priorities. During this academic year and continuing into 2007-08, CPB is working with the CPEVC on a different kind of campus planning model that more directly links together three types of planning: financial, physical, and academic. We will report to the Senate on progress made in developing campus planning and funding models that target the dollars generated by increased enrollments and other sources to the enhancement and development of specific programs, and that condition further growth on achieving agreed-upon planning benchmarks.

Additional Conditions

Given the importance of enrollment management as an effective strategy for successful growth, CPB recommends that to the two conditions already identified (graduate ratio

¹ Growth should thus be planned in a way that preserves and augments TA support. In addition, there are other key principles that go beyond the scope of this report but which are critical to the goal of growing the graduate population without compromising resources. Office space, child care, and affordable housing are scarce resources for current graduate students. Our commitment to grow the graduate population should be coupled with a commitment to make more of these scarce resources available. Existing graduate programs, with established reputations, should be bolstered even as new programs are brought on-line. The campus should attract not only more graduate students, but the best graduate students. Existing fellowship programs should be augmented and new fellowship programs should be developed to attract the most competitive students from across the nation and the globe. Support for exceptional international students should be prioritized.

and assignable square footage (ASF)), we add two additional and linked measures: *retention rates and time-to-degree*.

Retention rate is a key measure of education quality because it is correlated with most of the other major indicators of quality. It is affected indirectly by class size and student-faculty ratio as well as by selectivity. Retention is also directly affected by several major elements of program assessment, especially the availability of courses, advising and mentoring, academic program preparation and selection. Because measures based on graduation rate, and by extension, retention, are widely used in the UC system, the campus already has substantial data, gathered over time by the Office of Institutional Research. Graduation rates are further broken down by characteristics of student subpopulations, including high school GPA, standardized test scores, gender, and ethnicity. Retention and graduation rates thus provide a multilayered picture of academic quality. There is more debate over the usefulness of simple time-to-degree as a measure of performance (many positive outcomes would lengthen time to degree, just as there are bad outcomes that would have the effect of lowering time to degree). So it is critical to use the two measures not in isolation but as an ensemble, that is, to supplement the basic statistics of retention with more nuanced data/analysis related to progress toward degree.

Based on the analysis done by CEP (May 2006, report [AS/SCP/1495-1](#)) and by VPDUE Ladusaw (Primer on UCSC Retention and Graduation Rates), it is clear that the two measures are interrelated. Graduation rates are also part of the picture (the conventional benchmark used by the Office of the President and the Regents). Enrollment data show that UCSC has lower than the UC average for 1 and 2-year retention rates (see Figures 4 and 5), about average 4-year graduation rates (see Figure 6), and below average 6-year graduation rates (see Figure 7). The reason for these seemingly anomalous rates is that the greatest source of the gap in our 6-year rates—the percentage of students who have graduated within six academic years, considered the best benchmark of institutional effectiveness, according to the Ladusaw Primer—results from attrition in the first two years. Increasing retention and improving our six-year graduation rates are twin goals that, the CEP report underscores, require constant monitoring and innovation.

Recommendations I

CPB recommends expanding the enrollment data gathered annually from the campus to include breakdown by division and department. The overall campus figures appear to be simply too crude to underwrite the planning we need. The kinds of nuance include measuring numbers of degrees granted and time-to-degree by department and division as well as comparing these measurements to those at peer institutions, both in and outside of the UC system. Retention should also be measured by cohort (lower and upper-division) as well as by program, department and division. This would allow remedies to follow that are specifically responsive to the student group and/or instructional unit. For example: if the number of majors and degrees granted in divisions that are slated for growth under the plan do not increase proportionally, then the FTE allocation will be reviewed and revised. In relation to retention during the first two years (where there is evidence of a significant loss, as indicated by Tables 4 and 5), the campus will analyze the source of the

attrition. If the problem lies primarily in under prepared students, then more academic support must be offered; if the problem lies with the upper quartile of students (again, as the evidence suggests), then measures to strengthen educational rigor must be taken (e.g., honors programs and intensive tracks within majors).

Possible Additional Conditions

The Senate may wish to consider some additional factors as conditions of growth. Some factors are fairly easy to assess. These include:

- Admit and yield rates of students
- Class size
- Student-faculty ratios
- Filled ladder rank faculty positions (number of first and/or second-choice hires)
- Voluntary separations

Other factors may be more difficult to assess. For example, students might be asked about their ability to matriculate in desired courses, their interactions with faculty, and their interactions with graduate students.

Data development and management will provide planning insight to such interrelated questions as when freshman selectivity should commence; how rapidly and in what form infrastructure expansion should occur; how graduate education resources should be divided between new and existing programs; links between new faculty FTE requests, including start-up funds, and graduate program expansion; how diversity goals can be achieved as part of overall enrollment management; and expected financial resources resulting from enrollment-driven revenue growth, graduate enrollment-driven growth in research funding, and growth in funds generated by better coordination between faculty and development officers. Appendix 1 lists some of the data needed to monitor growth and allocate resources.

Accountability

In the early 1990s, the campus followed a model of accountability called “Managing Faculty Resources” (MFR) that linked student enrollments to faculty FTE. After 2000 the campus abandoned MFR and decoupled student enrollment numbers from faculty FTE allocations. As a precursor to a unified campus plan, the administration undertook to restructure the proportional sizes of the academic divisions. If current enrollment patterns (demand for particular majors) hold, proportional sizes of divisions in 2010-2011 and beyond will not reflect the increased demand accrued during that time for majors in the Arts, Humanities, and Social Sciences. Conversely, demand for undergraduate majors in PSci and Engineering will not increase in proportion to the size of their faculties. As noted in the body of this report, UCSC's undergraduate retention rate is likely to fall -

with serious negative consequences for the campus - if significant numbers of UCSC students cannot complete majors in the subject of their choice.

Recommendations II

While the campus has made a considered decision to abandon the direct proportional coupling of student enrollment numbers with faculty FTE allocations, CPB believes there must nonetheless be clear numerical targets provided to each division for the numbers of undergraduate majors and graduate students that they are expected to enroll annually during each planning period. These targets would not impose a false symmetry on programs: divisions will have different undergraduate-graduate ratios, different expectations for research monies, different actual capacities and targets for each program, as well as other deliverables. In tracking targeted increases in programs that departments want to grow and/or in specific majors, the campus would need to allow a two-three year window in which to assess progress toward these targets. After that window, should any division fall short of these targets, the CPEVC and the CPB should consider the reallocation from the division of any faculty FTE not yet filled and/or the reclaiming from the division of faculty FTE at point of retirement or other separation. This redistribution strategy is an essential piece of the accountability the campus expects from both existing and new programs, departments, and divisions.

Conclusions

We want to draw attention to the difference between conditions for growth defined as trip-points and measures of growth that create the conditions for analysis and mitigation. While the current conditions of growth have never been fully followed (that is, not meeting them for the requisite time frame has *not* resulted, as expected, in reducing undergraduate enrollments), they have functioned effectively as measures of *how* we are doing in meeting our goal of enhancing graduate education. As a measure, the 15 percent goal has alerted us to unanticipated effects in growth of graduate courses and programs that are discussed above. In turn, this has produced pressure for mitigation measures. Even as we face a general horizon of slowed growth, there will be unanticipated periods of increased undergraduate enrollments, as we are currently facing with the 10 percent increase in freshman enrollments projected for this fall 2007. This is precisely the situation in which enrollment management becomes key. To ensure that we retain these students and allow for increasing selectivity in future years, we must take the single most important mitigation measure now: to increase graduate support, in the form of TAs in selected courses, in order to protect the quality of the undergraduate education we deliver to these students. In short, even imperfect, and imperfectly applied, measures of growth work well in consistently focusing campus attention on the outcomes as we move toward our goals. This report urges the campus to develop a systematic, continuous monitoring, and transparent reporting to all units, of a set of measures that we refine and reassess even as we use them to monitor our progress.

Appendix 1: Data and coordination needed to allocate resources and track progress toward 15 percent graduate enrollment goal.

Numbers of Students – Current and Projected

- Undergraduate level
 - Freshman applications
 - Freshman FTEs
 - Transfer applications
 - Transfer FTEs
 - Retention rates for freshman and transfers
 - Time to degree for freshman and transfers
 - Diversity of class
- Graduate level
 - Application number
 - 1st year FTE
 - Mix of Masters and PhD
 - Time to completion for all students
 - Status of proposals for new graduate programs
 - Timing
 - Estimated number of students over time
 - Diversity of class
- Campuswide
 - Enrollment cap status
 - Expectations of UCOP

Coordination of functions

- Freshman and Transfer admissions
 - Selective admissions process
 - Admittee recruitment process
 - Campus diversity goals
- Graduate Program Growth
 - Existing programs
 - Graduate student support
 - Fellowships
 - TAs
 - Research/travel money
 - Links with faculty start-up
 - Services – Graduate College
 - Housing
 - Programmatic support
 - Faculty FTE support
 - New programs
 - Planning support
 - Implementation support
- Physical Infrastructure needs
 - Graduate office space
 - Graduate residences
- Financial analysis

- Available Resources
 - State sources
 - Student FTEs
 - Other enrollment-related
 - Non-state sources
 - Opportunity money
 - Off-the-top money
 - Gifts
 - Other resources
- Funding requirements
 - Interim
 - Graduate program planning
 - Graduate program implementation
 - On-going
 - Grad student support

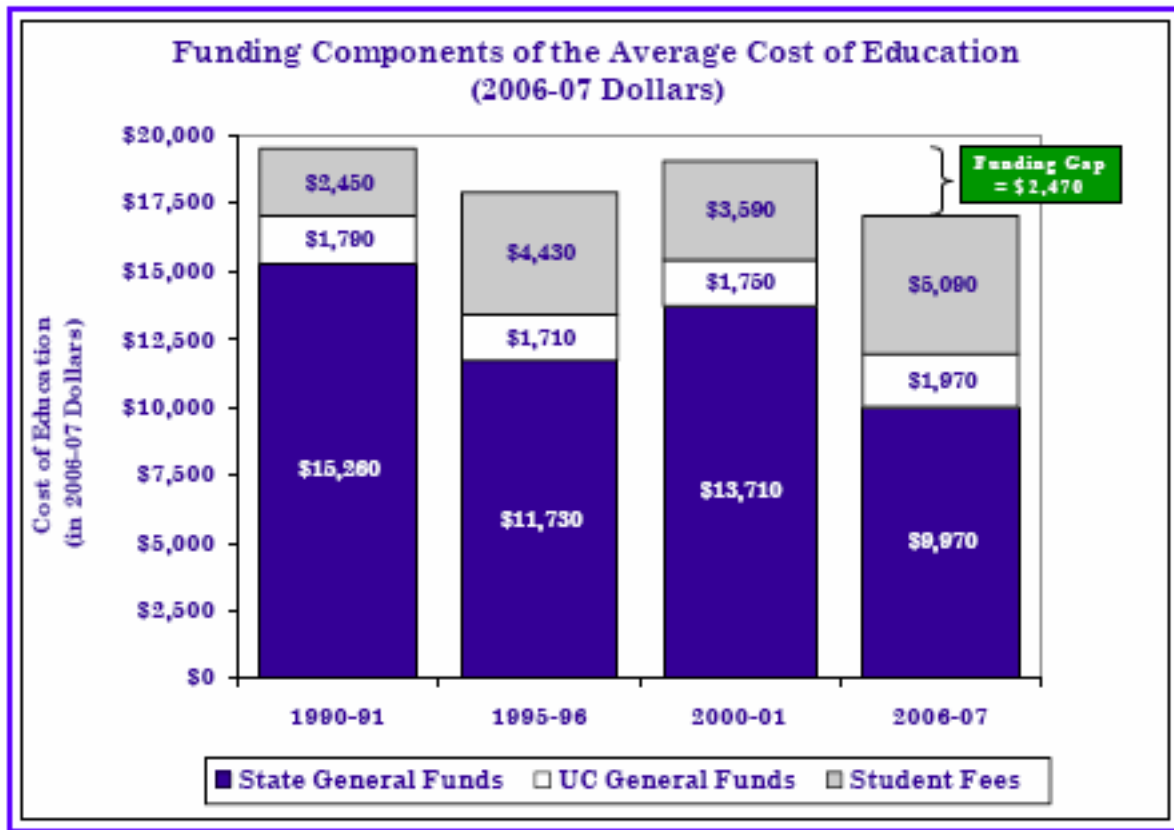


Figure 2. Ph.D. programs and degrees conferred

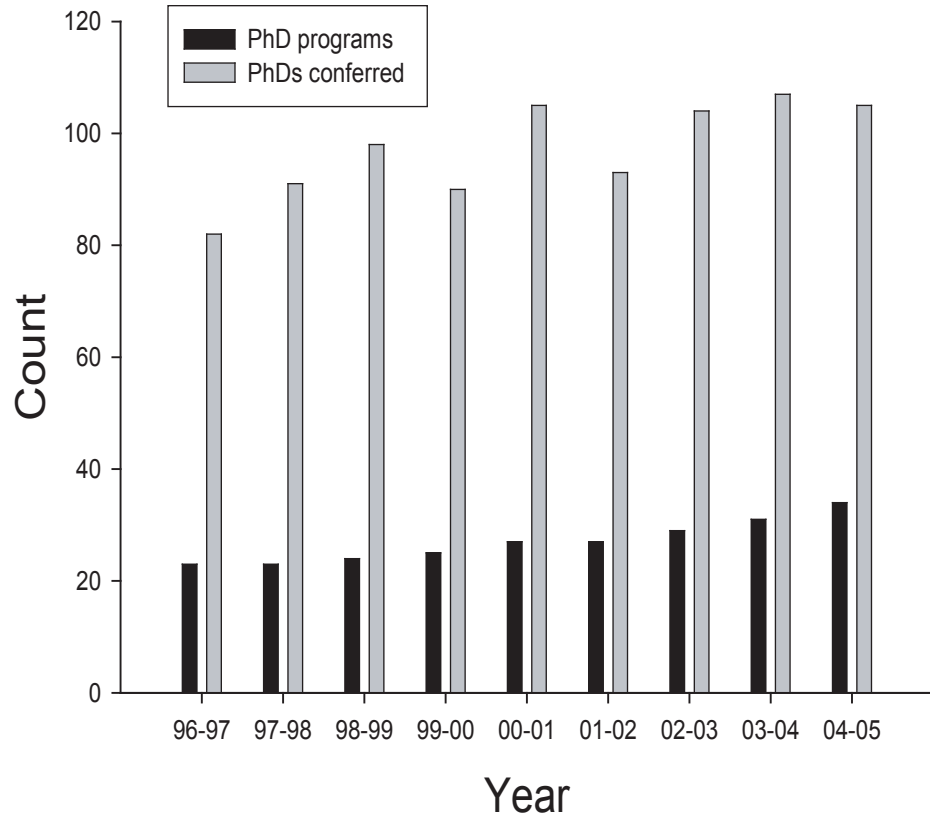


Figure 3. Enrollments

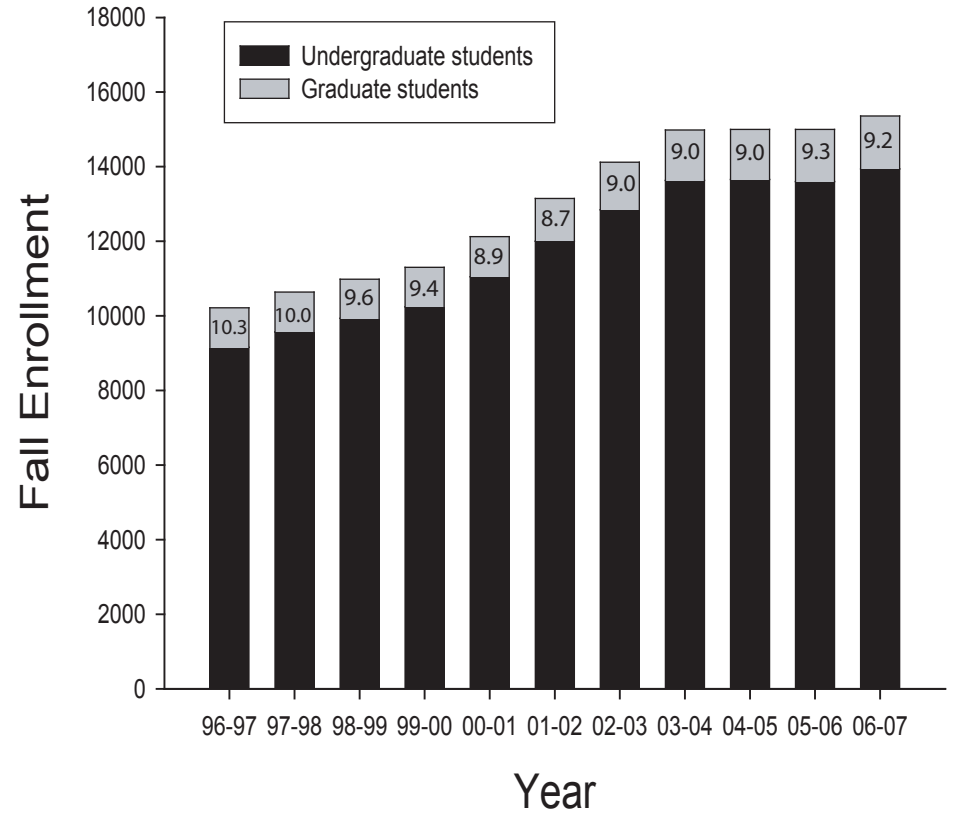


Figure 4. 1st-year retention rates

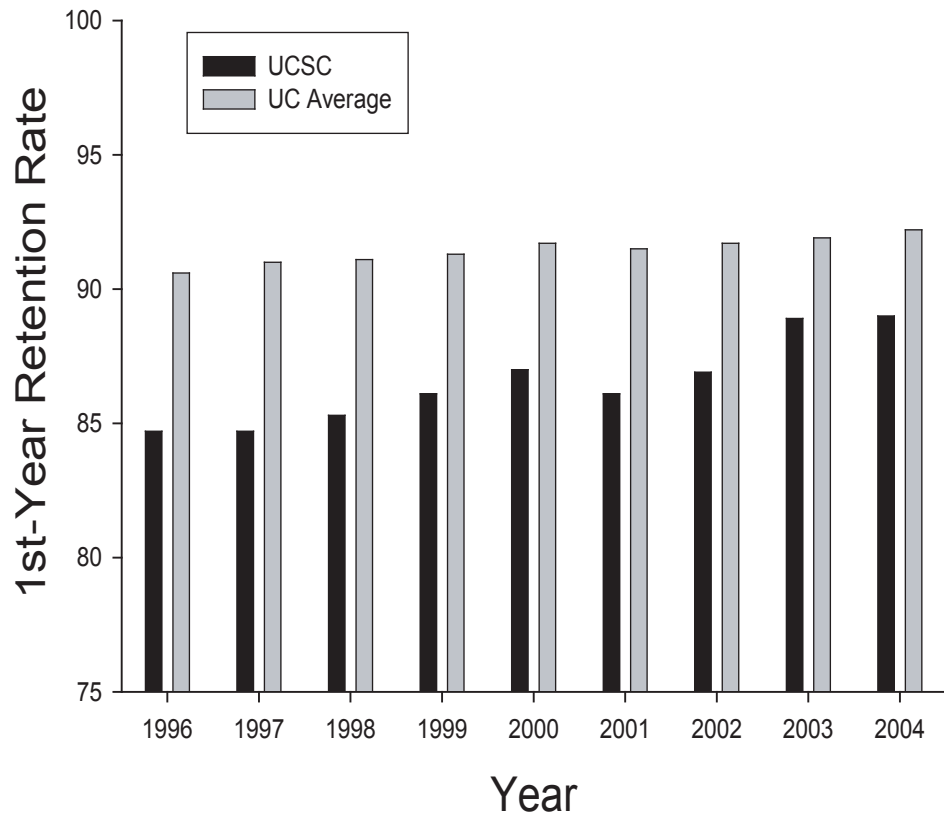


Figure 5. 2nd-year retention rates

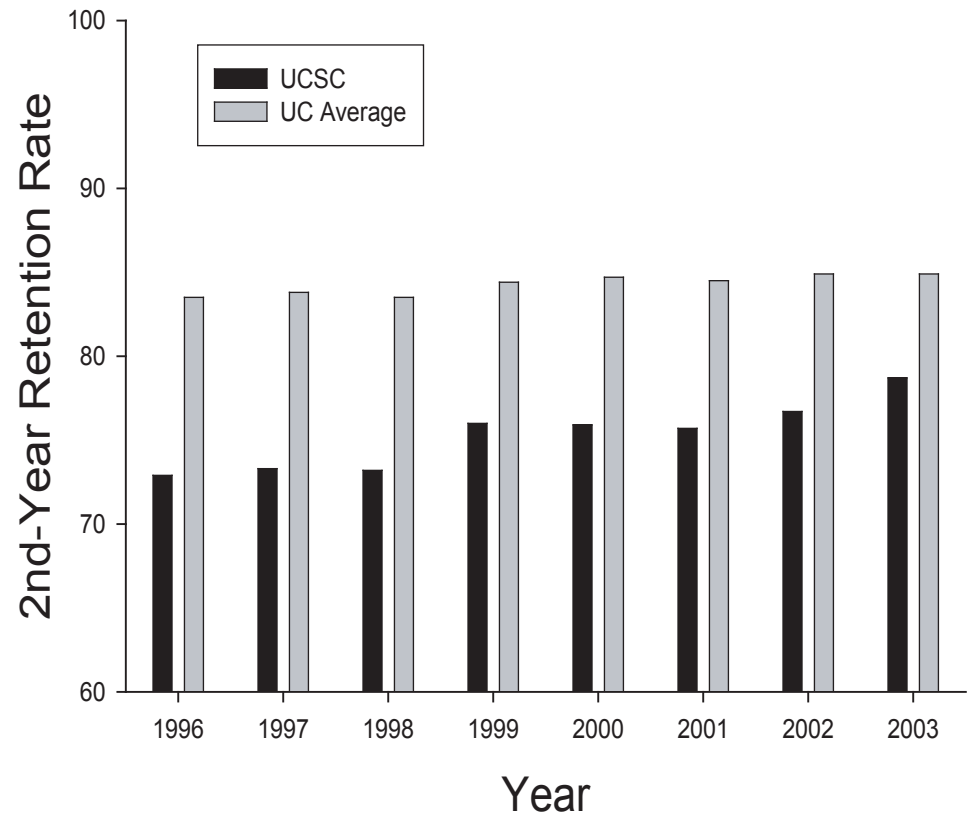


Figure 6. 4-year graduation rates

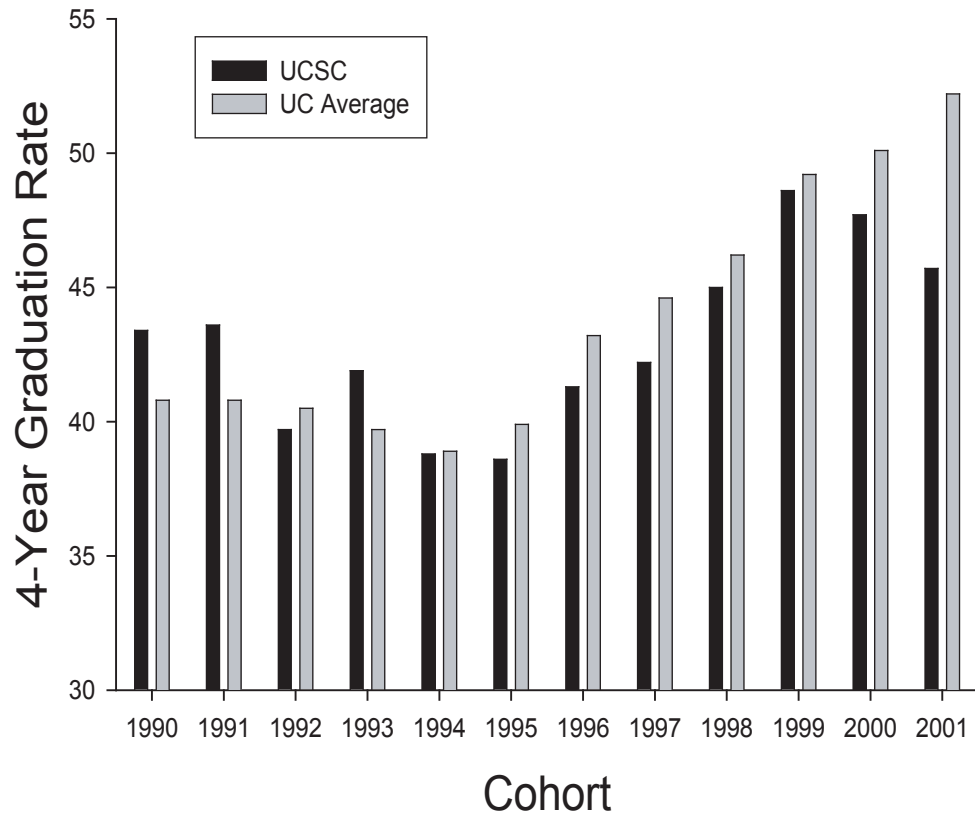
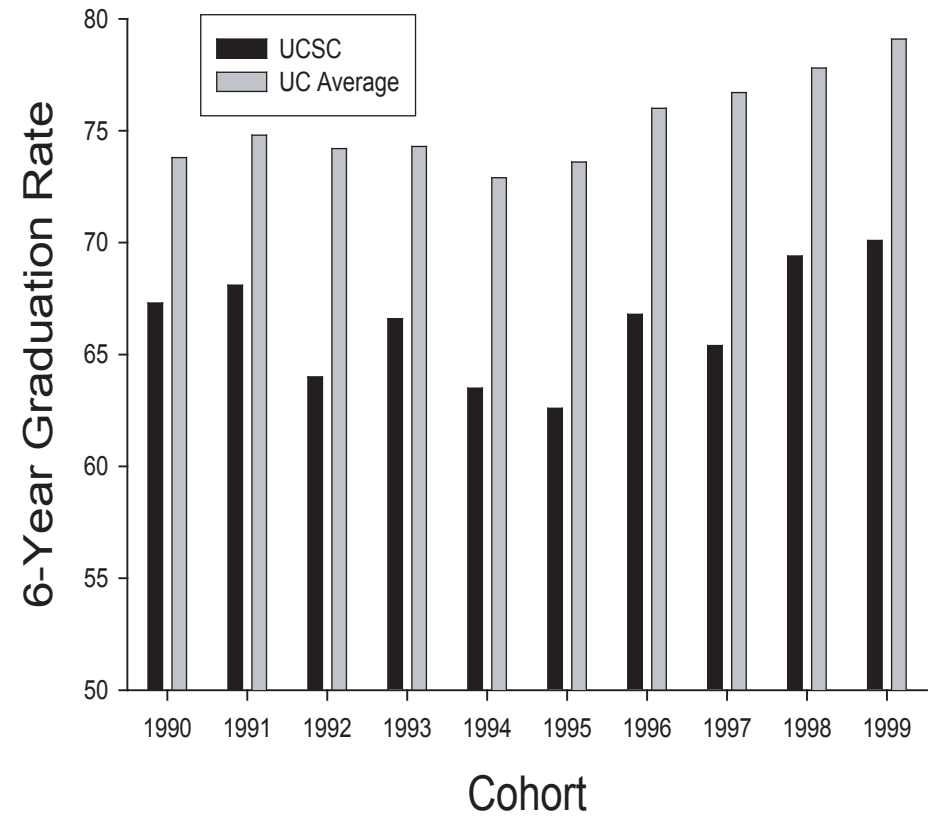


Figure 7. 6-year graduation rates



Respectfully submitted,

COMMITTEE ON PLANNING AND BUDGET

Faye Crosby, *ex officio*

Ray Gibbs

Emily Honig

David Evan Jones

Tracy Larrabee Eben Kirksey, GSA Representative

Karen Otteman Bryant Mata, SUA Representative

Ravi Rajan

Grant Pogson

Quentin Williams, *ex officio*

Susan Gillman, Chair

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