

**SENATE EXECUTIVE COMMITTEE**  
**Submission of the Joint Senate/Administrative Task Force Report and Recommendations**  
**June 2015**

To: Academic Senate, Santa Cruz Division

The Senate Executive Committee submits the Joint Senate/Administrative Task Force on Graduate Growth (TFGG) June 2015 Report and Recommendations for consideration and discussion at the November 13, 2015 Academic Senate meeting.

Respectfully submitted;

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## **Joint Senate/Administrative Task Force on Graduate Growth Report and Recommendations June 2015**

### **Executive Summary**

Graduate growth has been a long-standing goal of UCSC's efforts to increase its reputation and impact. The goal of 15% graduate enrollment was adopted by the Senate in 2002. Furthermore, with rebenching, the recent increase in per-student funding from UCOP, comes a mandate to increase our Ph.D. enrollment to 12% of undergraduate enrollment. UCSC is well below either level of enrollment, and our graduate enrollment falls significantly short of AAU research universities, including six UC AAU campuses, with which, in other respects, our campus is comparable. For 2012-13, the UCSC Ph.D.-to-Faculty FTE ratio was lower than the system-wide average for all categories except Life Sciences (when comparing to campuses without medical schools), ranging from 0.5 below in the Social Sciences to more than 1.0 below in Engineering. Similarly, we have a smaller number of master's programs and, accordingly, grant many fewer master's degrees than our UC sister campuses and other peer institutions. Within a five to ten year time frame that encompasses both the system-wide rebenching and system-wide long-range enrollment planning, we have projected transformative growth in Ph.D. and master's program enrollments to bring UCSC up to UC and AAU norms in the size and quality of our graduate programs. Other UC campuses are also aggressively ramping up their graduate enrollments so it is imperative that UCSC does the same or fall even further behind our UC sister campuses.

In fall 2014, the Senate executive Committee (SEC) proposed several guiding principles for graduate growth: 1) the primary driver of UC Santa Cruz student growth must be our academic mission; 2) implementation of graduate growth will enhance undergraduate education; 3) resources for graduate growth will be used to foster excellence; 4) planning for and monitoring progress of graduate growth will be organized at the center; 5) faculty incentives, both financial and intellectual, will increase graduate enrollments; and 6) graduate education supports scholars in a variety of career trajectories. The Academic Senate accepted the Senate Executive Committee's Guiding Principles for Graduate Growth<sup>1</sup> (October 2014) that included a recommendation for a Joint Senate/Administrative Task Force on Graduate Growth.

The Joint Task Force was charged on February 11, 2015 by EVC Galloway and the Senate Executive Committee (SEC) to assess the campus' current efforts to 1) achieve the graduate growth mandated as part of system-wide rebenching, and 2) offer analysis and recommendations for strong, high-quality growth of graduate education and research at UCSC. The Task Force membership included the Senate, Graduate Division, other campus administrative leadership, academic deans, key Senate faculty, GSA representation, and analytic staff support.

As a way of maximizing the impact of the Task Force's effort and time, work focused on four major topic areas that together arguably leverage the whole spectrum of graduate growth issues:

- Capacity (which programs can grow, how much and under what conditions can

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<sup>1</sup> The report may be viewed at <http://senate.ucsc.edu/senate-meetings/agendas-minutes/2014-2015/2014-november-7-senate-meeting/1772%20-%20SEC%20Grad%20Growth%20Principles%202014-15.pdf>

- programs grow);
- Allocations (how are campus funds being used to encourage growth and how do our strategies differ from those at other UC campuses);
  - Incentives (how might the personnel process and department workload policies encourage greater faculty commitment to graduate education);
  - Professional Development (how can the campus ensure that growth is accompanied by effective placement and increased opportunity for our graduates).

This report summarizes the four subcommittee reports, along with a set of prioritized recommendations representing the whole Task Force. In addition, we note the importance of international recruitment, inter-institutional agreements, research opportunities abroad for UCSC graduate students, and sponsored international students for our graduate growth efforts, which warrant further examination. We look forward to discussing these topics further with Senate and administrative leadership responsible for the campus' internationalization efforts.

The Capacity subcommittee focused primarily on two interrelated projects: a) analyzing the system-wide data on Ph.D.-to-Faculty ratios to determine how UCSC compares with the other UC campuses; and b) in-depth discussions with the divisional deans about their strategies for growing the graduate programs in their departments. After comparing UC and UCSC data by discipline and discussing program-level capacity with the divisional deans, the subcommittee noted that the UCSC Ph.D./Ladder Faculty Headcount is lower than the UC norms across all disciplines with some exceptions in the Life Sciences. The subcommittee concluded that while increase in Ph.D.-to-Faculty ratios are needed in all disciplines, absent a focus on placing rebenching faculty FTE in Engineering and PBSci, the eventual distribution of faculty may preclude reaching the 12% goal, with Ph.D.-to-Faculty ratios similar to other UC campuses.

The Allocation subcommittee focused on: a) evaluating successful allocation models used by other UC campuses (or other universities) based on documentation and discussions with relevant administrators (Graduate Deans) at the campuses; and b) evaluating the cost/benefits of adopting any of these models or hybrid of these models at UCSC. The subcommittee found considerable variation across the UC system on methodologies for allocating graduate support resources, and it encourages further analysis to uncover best practices and provide possible directions for optimizing UCSC's graduate support allocation. We recommend that in Summer 2015 the Graduate Division follow up on these efforts by modeling our block allocations using other campuses' methodology to determine whether they lead to significant redistribution of support funding and the possible impacts (positive or negative) of any such redistribution. Assessment of current and future growth initiatives will still require further analysis. Based on the Senate's principle that "Planning for and monitoring progress of graduate growth will be organized at the center," this report recommends developing metrics. This discussion will continue in the Graduate Division's summer planning; additional work is needed to develop the most useful models for assessing initiatives and, where necessary, may require new ways of aggregating DGS data to facilitate analysis of impact. Having analyzed different campus models for mitigating negative impacts of non-resident supplemental tuition (NRST) on doctoral admission and support, the subcommittee explored the scenario of creating a fellowship program that would provide for the payment of the NRST for all international doctoral students beyond their first year of residency who have not yet advanced to candidacy (following the recently adopted program at UCSB). Currently at UCSC, NRST collected from international

enrollments is recycled into the block allocation. A fellowship program, while initially reducing slightly the block allocation in some programs, would reduce the disincentives to admit students on the basis of citizenship or permanent residency rather than on demonstrated ability, thus alleviating consideration of the student's non-resident standing during the departmental admissions cycle.

This is likely to lead to more international students and the campus will net the tuition from the first year for these students which will be recycled into the block grants, thus gradually increasing the block grant overall. The subcommittee's recommendation of NRST mitigation is intended to address negative consequences of NRST in distorting admission decisions and potentially reducing student quality and diversity. It also aligns with the SEC Principle that "Resources for graduate growth will be used to foster excellence." The NRST also absorbs support funding that could be used for stipends and may affect decisions regarding employment of international graduate students as TAs and GSRs. Lastly, other UC campuses have taken strong measures to mitigate or eliminate NRST for doctoral students, so that failure to reduce its impact at UCSC may exacerbate competitive disadvantages with respect to our UC sister campuses and other peer institutions.

The Incentives subcommittee directly addressed the SEC graduate growth principle that increased attention to incentives will encourage faculty to participate in graduate education and will be a primary factor in UCSC's success. The subcommittee focused on incentives to faculty for increasing the number of graduate students with whom they interact. These incentives can be provided through two different mechanisms: the academic personnel review and promotion process, and the departmental workload policies. The subcommittee articulated four major findings:

- Unlike most other UC campuses, UCSC does not further define in the local Campus Academic Personnel Manual (CAPM) policy the criteria for advancement set forth in the system-wide APM 210 policy. APM 210 is very vaguely written and does not specifically address graduate education.
- The UCSC Committee on Academic Personnel (CAP) maintains guidelines for compiling successful personnel files on our campus but these guidelines do not highlight the important role of graduate education directly as do those of other UC campuses.
- Departmental workload policies vary dramatically across divisions, and even within a division. However, one commonality is that very few departments discuss the possibility of differential workloads that take into consideration the number of graduate students advised or research activity that results in increased graduate student mentoring loads. Some workload policies are clearly out of date and appear to have been written before the respective department had a graduate program.
- "Full service faculty that teach across the curriculum" is a phrase that has been repeatedly used on our campus recently, including by the EVC. There is lack of clarity among faculty as to the most appropriate interpretation of this phrase and its impact on the ability of departments to focus on graduate education.

The Professional Development subcommittee directly addressed the SEC graduate growth principle that "Graduate education should support scholars in a variety of career trajectories." The subcommittee was charged with identifying practices, resources, and needs across the campus for professional development of graduate students, both inside and outside the academy. The subcommittee focused on 1) identifying the current departmental/divisional resources for graduate

student professional development and professional development needs; 2) examining the resources for graduate students in relation to non-academic career options; and 3) assessing the fundraising efforts for graduate student growth on campus. The subcommittee developed a survey that went out to the graduate directors of the thirty-nine graduate programs on campus and analyzed the survey and other available information. A key finding was that *programs have broad interest in graduate growth, yet continue to lack confidence that the campus and divisions will support growth on a sustained and appropriate basis*. Many departments also report that they would offer professional development opportunities but for lack of training, staff, and resources (especially when addressing non-academic career preparation). Further research is needed into best practices across campus, and a better coordinated and resourced approach to graduate professional development should be established.

## Recommendations

Priority	Sub-committee	Recommendation	Responsibility
Highest	Capacity	Doctoral (and other) graduate growth should be emphatically articulated as a campus priority, and all major decisions such as faculty hires, resource allocations, and advancement should be evaluated with respect to potential impact on the accomplishment of the campus' growth goals.	Chancellor CPEVC
Highest	Capacity	Divisional deans should be asked to establish target Ph.D.-to-Faculty ratios for their programs and division in light of our goal to advance UCSC graduate education to the norms of UC's AAU campuses. Allocations of faculty FTE and other strategic resources should be strongly evaluated on how they will augment the number of Ph.D. students and accountability for meeting these goals should be enforced.	Deans CPEVC
Highest	Capacity	Approval and authorization for new hires must be targeted toward programs that are identified as having capacity for Ph.D. enrollment growth. This may require a focus of rebenching faculty FTE in Engineering, PBSci and specific programs in the other divisions for the immediate future. Long term increases in Ph.D./faculty ratios are needed in all disciplines so that the eventual distribution of Ph.D./faculty ratios becomes similar to other UC campuses.	CPEVC Deans CPB GC
Highest	Allocation	Utilizing information about best practices in the UC system, the Graduate Division and Office of Planning and Budget should develop a model for allocating block and other graduate support funds based on metrics assessing our incentives developed from campus data. Metrics should embody the campus' expectations of programs to contribute to graduate growth and excellence, and should reward/sanction programs according to their success in achieving these expectations.	VPDGS Office of P&B CPB GC
Highest	Allocation	An International Doctoral Recruitment Fellowship (IDRF) program should be created that will provide for the payment of the NRST for all international doctoral students beyond their first year of residency who have not yet advanced to candidacy. This program follows the recently adopted program at UCSB.	VPDGS Office of P&B CPB GC CIE

## Recommendations

Highest	Incentives	The administration should engage CAP and other relevant Senate Committees to draft a CAPM counterpart of APM-210 that clearly conveys the idea that graduate education is an integral component of ladder-rank faculty teaching and is not optional. We recommend using existing policies from other campuses as a model.	VPAA CAP
Highest	Incentives	The administration and CAP should establish review guidelines that clearly highlight that an appropriate level of graduate advising and support of graduate students is an integral component of ladder-rank faculty teaching and therefore expected from all faculty, and not an optional activity that can be used to “enhance” someone’s profile. VPDGS should be included in consultation with CAP and the Dean’s Advisory Council to help develop these guidelines and annually, prior to the personnel review and recruitment season.	VPAA VPDGS CAP
Highest	Incentives	Academic deans in all divisions should explicitly highlight graduate mentoring and support in review and promotion letters, and in recruitment calls.	Deans
Highest	Incentives	The administration and CAP must clarify the definition of “teaching across the curriculum” to allow for some level of faculty specialization. Furthermore, the campus should consider <i>judiciously</i> expanding LSOEs for undergraduate and master’s instruction so that research ladder-rank faculty can focus on expanded doctoral advising/mentoring.	CPEVC VPAA CAP
High	Incentives	The VPAA should put out a call for departments to update their workload policies to recognize the importance of graduate education (including participation in committees outside the department and generating resources to support those students), as well as consider differential workloads associated with graduate student supervision. Some variability in the details of the policy from department to department is expected to recognize different stages of development of graduate programs. However, there should be an expectation that, as new programs are launched and the nascent ones mature, all faculty must regularly contribute to graduate advising and education.	VPAA Deans Departments
High	Allocations	Allow partial or full carry-over of unallocated block grant funds for programs in order to increase flexibility and stability for multi-year offers.	VPDGS Departments

## Recommendations

High	Professional Development	Make development for graduate student support a high priority for the newly constituted Office of Research Development, as well as University Relations. Identify concrete fundraising efforts and strategies to increase the campus' revenue for supporting graduate growth. These should include efforts to expand the campus' ability to win and sustain large multi-PI interdisciplinary research grants and training grants that extend our graduate support capacity.	VCR VCUR VPDGS Special Cte on Fundraising & Development
High	Professional Development	To ensure student success, 2 full-time staff career counselor positions should be created to work exclusively with graduate students on non-academic career preparation. These staff members should report to the Graduate Division and would assist the Divisions with programming around non-academic career preparation. Their work will be part of an integrated structure so that work currently being done in the Divisions, the Graduate Student Commons, and the Career Center is coordinated.	CPEVC VPDGS Career Center Deans
High	Professional Development	Identify what graduate professional development resources exist at the UCSC Career Center, and which are open for expansion; better recognize ways to collaborate with the Graduate Division and leverage these efforts to produce more professional development opportunities.	VPDGS Career Center
Medium	Allocations	Explore further mechanisms (risk-pooling and "insurance" reserves, growth of endowments, etc.) to allow expansion of multi-year offers.	VPDGS Office of P&B
Medium	Allocations	Offer term-limited enhancements (e.g. three years) of block allocation in exchange for the development and successful implementation of a departmental plan for growth and improvements of outcomes (e.g. grants to support students, degree completion, time to degree).	VPDGS
Medium	Professional Development	Encourage departments/programs to deliberately address in their program development and advising the opportunities for graduates pursuing non-academic positions. Issues to address would include how many/what percentage of graduate students plan for a non- tenure track university/college position, what types of jobs do both faculty and graduate students envision, and what are the ways a program can help students locate job opportunities. Departmental self-studies should address this issue in the external review process.	VPAA Deans Departments Grad Directors

## Recommendations

Medium	Professional Development	The subcommittee's departmental survey should be analyzed more closely in order to process the divisional differences, and to identify specific professional development needs and best practices across divisions.	VPDGS GC
Medium	Professional Development	Develop a method for tracking career pathways after graduation, determine an office of record for housing the data, ensure that data articulate with UCOP data collection and meet campus needs. Align fragmentary data collected by departments, divisions, the Career Center, Graduate Division, or Institutes. Determine how data can be effectively accessed, analyzed and reported, and used for graduate networking and career opportunities. Departmental self-studies should address this in the external review process.	VPDGS VCUR Departments Deans VPAA
Medium	NA	Discuss international education topics relevant to graduate growth – international recruitment, inter-institutional agreements, research opportunities abroad for UCSC graduate students, sponsored international students – with Senate and administrative leadership responsible for the campus' internationalization efforts.	VPDGS SIO and/or VPIE OIE CIE

## **I. Capacity Sub-Committee**

The Capacity subcommittee focused primarily on two interrelated projects: a) analyzing the system-wide data on Ph.D.-to-Faculty ratios to determine how much UCSC falls below the other UC campuses; and b) in-depth discussions with the divisional deans about their strategies for growing the graduate programs in their departments.

Analysis of the data has helped the committee identify: a) divisions and, in some cases, programs that have the highest likelihood for graduate growth, b) divisional differences in capacity for growth, including differences for those divisions with greater opportunities for external funding and those with less opportunity for external funding, and c) structural constraints to growth as identified by the quantitative data and conversations with the divisional deans.

### **UC Santa Cruz Ph.D. Capacity**

We began by exploring whether the UC Santa Cruz faculty are distributed in a way that could allow the campus to achieve the 12% Ph.D. goal. For 19,500 students (the current maximum allowed by the LRDP), one reasonable scenario would be to have around 2,040 Ph.D. students, 460 M.S./M.A. students, and 17,000 undergraduates. Other scenarios with more M.S. students and fewer undergraduates would achieve the 12% goal with fewer Ph.D. students. In our analysis, we will not examine the capacity to advise M.S. students. We note, however, that in various ways, we will need to attend to workload considerations to ensure that overall on the campus both Ph.D. and master's growth can be accomplished in a mutually beneficial and balanced way. There will be no "one-size-fits-all" solution to possible problems arising in workload balance for Ph.D. and masters education, but measures that should be considered include targeted use of additional adjunct teaching and TA support for larger master's programs, streamlining of unnecessarily work-intensive masters programs (e.g. explore course-work, exam-based, or other less mentorship-intensive requirements, and consider shortening program time towards a one-year norm), and appropriate leverage of Ph.D. and upper-division undergraduate curriculum. In a limited number of cases, by the nature of the discipline, there may be a zero-sum relationship between mentoring master's and Ph.D. students, in which case Ph.D. mentoring should be prioritized. In addition, although M.F.A.'s are not at present recognized in the mandated rebenching numbers, UCSC acknowledges their importance as terminal degrees in the Arts and their role in the Arts Division's contribution to the campus' graduate excellence.

For this analysis, we clustered faculty into eight categories that can be easily compared among the UC campuses: Engineering/Computer Science; Fine Arts; Humanities; Life Sciences; Physical Sciences; Social Sciences; Professional; Other. These categories are not isomorphic with the divisions at UC Santa Cruz. For example, Applied Math & Statistics falls within the Physical Sciences in the UCOP data, not Engineering; Environmental Studies and Biomolecular Engineering fall within the Life Sciences (along with three PSci departments); Education and History of Consciousness fall outside their home divisions (details are supplied in Appendix I).

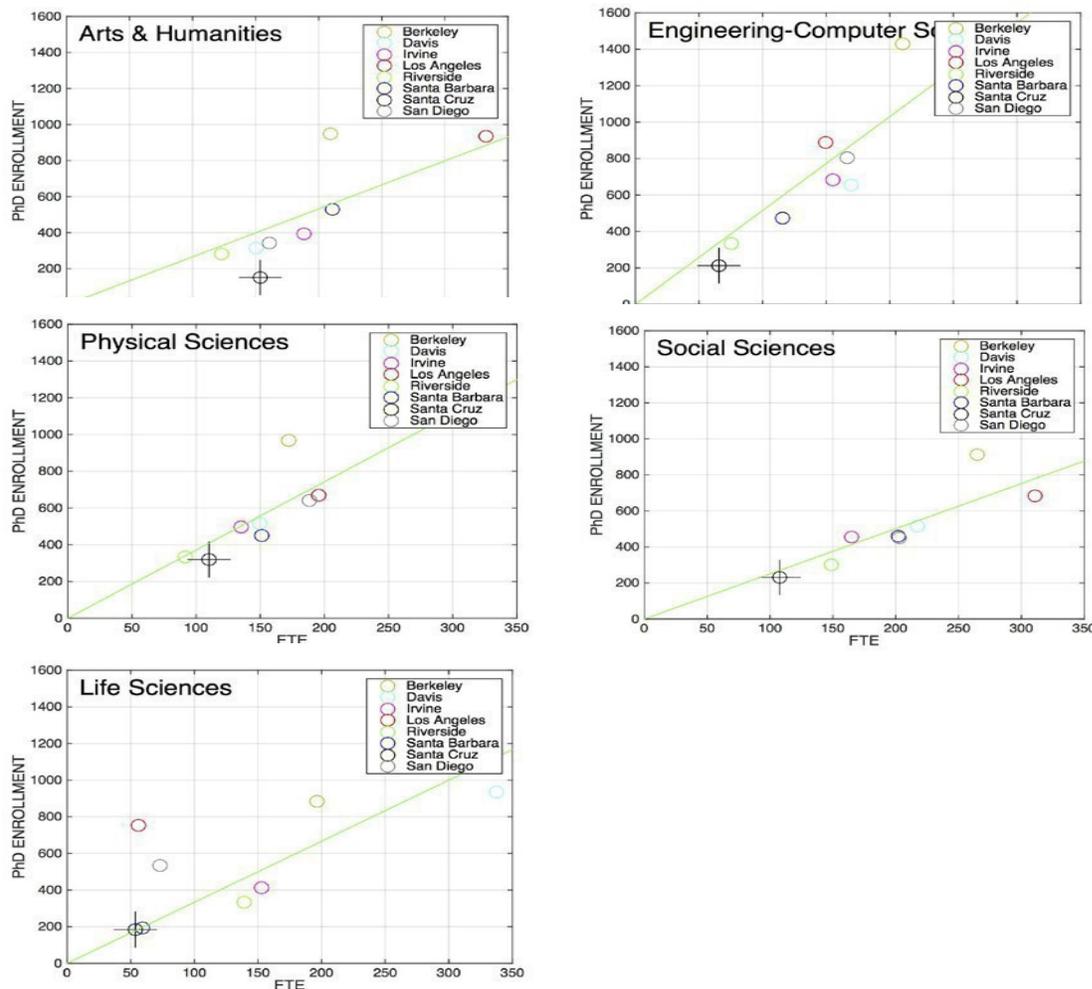
For each of these eight categories, we know the average Ph.D.-to-Faculty FTE ratio at our sister campuses for the 2012-13 academic year. For 2012-13, the UCSC Ph.D.-to-Faculty FTE ratio

was lower than the system-wide average for all categories except Life Sciences (when comparing to campuses without medical schools), ranging from 0.5 below in the Social Sciences to more than 1.0 below in Engineering (compare Columns 1 and 2 in Table 1). To evaluate the Ph.D. capacity of the UC Santa Cruz faculty, we multiply Faculty Headcount by a Ph.D.-to-Faculty Headcount ratio. As campuses may use unfilled Faculty FTE to fund other instructional and research obligations, the number of Faculty FTE is often higher than the Faculty Headcount, leading to a lower Ph.D.-to-Faculty FTE ratio. Even so, we can use the differences between UC Santa Cruz and our sister campuses (as measured in Faculty FTE) to consider plausible scenarios when modeling using the Ph.D.-to-Faculty Headcount ratios. This can be done in different ways: we could choose a "model" sister campus to set a ratio; explore the outcome if every UCSC faculty member performed at the system-wide mean for their category; or assign a ratio that might better reflect our aspirations (and account for the problem of using Faculty FTE vs. Headcount).

In Table 1, we have used a mixed model. We use the UC average Ph.D.-to-Faculty FTE ratio for Arts and Humanities, a ratio slightly above the UC average for Life, Physical, and Social Sciences, and a ratio moderately above the average for Engineering. Those ratios yield a Ph.D. headcount of 1,571, using the faculty headcount from 2014-15. With our current undergraduate enrollment of circa 15,800, we would be at 10% Ph.D. students relative to undergraduates and would need an additional 325 Ph.D. students to meet the 12% goal. If we set more aggressive Ph.D.-to-Faculty ratios, increasing each category by 0.5 (possible in Engineering, Life, and Physical Sciences; likely a stretch for Arts, Humanities, and Social Sciences), the Ph.D. headcount would rise to 1,807, still around 90 Ph.D. students shy of the 12% target ([Appendix I](#), Scenario 2 - High Ratios).

Rebenching is expected to deliver 48 FTE to the divisions over the next three years. Of those FTE, 14 will be sequestered for launching M.S. programs in Silicon Valley. At this point, it is not clear when and to what extent SV faculty will mentor Ph.D. students, so they will conservatively not be considered in our calculations. If we assume for this exercise that the campus will not downsize any of the existing divisions, the main issue in the short term is how to distribute the remaining 34 FTE (keeping in mind that more FTE will presumably be generated as undergraduate enrollments rise). In Table 2, we consider one scenario where the 34 FTE are disproportionately distributed to Engineering, Physical Sciences, and Life Sciences (because of their larger Ph.D.-to-Faculty ratios and strong potential for external support) and to the Social Sciences (because of its large number of undergraduates and moderate potential for external support). In the model, some FTE distributions in a category flow to multiple divisions at UC Santa Cruz (e.g., BME and Environmental Studies in Life Sciences). This model yields a Ph.D. headcount of 1,689, circa 200 student shy of the 12% goal (details in [Appendix I](#), Scenario 1 - Low Ratios). With more aggressive Ph.D.-to-Faculty ratios (0.5 higher in all categories), the Ph.D. headcount would rise to 1941, above the 12% target (details in [Appendix I](#), Scenario 2 - High Ratios). There are, of course, many other ways the campus might distribute FTE from rebenching, but absent a focus on Engineering and PBSci, the eventual distribution of faculty may preclude reaching the 12% goal with Ph.D.-to-Faculty ratios similar to other UC campuses. (This theme was also raised in the recent CPB review of the 2015-16 FTE requests.) The other possibility is that the campus has over-enrolled undergraduate students relative to our faculty size. With around 30 enrolled undergraduates per Faculty FTE, UC Santa Cruz has nearly the highest student-to-faculty ratio in the UC system; only UCR is higher and all the other UC campuses range from 20 to 25.

The higher ratio of Undergraduates-to-Faculty at UC Santa Cruz may reduce faculty bandwidth for mentoring graduate students or for raising the funds to support them. With respect to the quality of undergraduate teaching and mentorship, the lack of faculty is compounded by the scarcity of Ph.D. students, who play an important role in undergraduate education as Teaching Assistants, as mentors for research projects, and as role models. As noted above, UCR has a higher Undergraduates-to-Faculty ratio than UC Santa Cruz (circa 32), but it also has higher Ph.D.-to-Faculty and master’s-to-Faculty ratios. In light of this, the strategy for undergraduate instruction and graduate growth taken by UCR deserves further exploration. We note too that the size of graduate programs in some divisions—and in some specific departments within the divisions—may be strongly dependent on undergraduate enrollments, which implies the need for caution about any strategy that looks to undergraduate enrollment reductions as a way forward for graduate growth. Lastly, we also acknowledge the potential negative political and fiscal impacts of undergraduate enrollment reduction on the overall campus, which might make any undergraduate enrollment reduction-based graduate growth strategy ill-advised.



**Figure 1. Plots of FTE vs. Ph.D. enrollment for the five major disciplines considered in the UCOP data, together with a linear fit (green line). Each circle represents FTE vs. enrollment for a UC campus, averaged over 2006-2011. The data point for UCSC is marked with a cross.**

**Table 1. Model of UC Santa Cruz Ph.D. capacity**

<b>Cluster</b>	<b>2012-13 Mean* UC Ph.D./Fac FTE</b>	<b>Fall 2012 UCSC Ph.D./Fac FTE</b>	<b>2011-14 UCSC Ph.D./Fac Headcount</b>	<b>Fall 2014 Faculty Headcount</b>	<b>Fall 2014 Ph.D. Headcount</b>	<b>Model Ratio Source</b>	<b>Model Ratio</b>	<b>Modeled Ph.D. Headcount</b>
Engineering	4.12	3.05	4.22	52	230	UCSC Custom	4.75	247
Fine Arts	1.33	0.74	0.87	60	64	UC Mean FTE	1.33	80
Humanities	2.51	1.54	1.45	91	128	UC Mean FTE	2.51	228
Life Science	4.66 3.28 <sup>‡</sup>	3.22	2.91	78	215	UCSC Custom	3.31	258
Physical Science	3.60	2.82	3.01	110	331	UCSC Custom	3.71	409
Social Science	2.34	1.80	2.44	101	228	UCSC Custom	2.75	278
Education (Prof)	2.30	1.88	2.11	14	30	UCSC Custom	2.75	39
HisCon (Other)	n.a.	9.33	11.15	3	27	UCSC Custom	11	33
<b>Total</b>					<b>1253</b>			<b>1571</b>

\* Mean UC data exclude UCSF and UCM. <sup>‡</sup>The upper Life Science number is the Mean UC average. The lower number is the average excluding UCD, UCI, UCLA, and UCSD, because in some cases, students supported by medical school faculty are skewing the ratio. The data for this model, which are supplied in [Appendix I](#), were collected by Institutional Research.

**Table 2. Model of UC Santa Cruz Ph.D. capacity after Rebenching**

<b>Cluster</b>	<b>Fall 2014 Faculty Headcount</b>	<b>Rebenched Faculty Headcount</b>	<b>Rebenched Ph.D. Headcount</b>	<b>Rebenched Ph.D. Headcount with high ratio</b>
Engineering	52	60	285	315
Fine Arts	60	62	82	113
Humanities	91	93	233	280
Life Science	78	84	278	311
Physical Science	110	117	437	485
Social Science	101	110	303	358
Education (Prof)	14	14	39	46
HisCon (Other)	3	3	33	35
<b>Total</b>	<b>508</b>	<b>542</b>	<b>1689</b>	<b>1941</b>

### **Divisional Dean Interviews**

We found the system-wide data useful for coarse-grain analysis, but far less useful for fine-grain analysis. Fine-grained analysis was difficult because the UC-wide data use categories that do not always match well with our divisional and departmental composition. We therefore talked extensively with the five divisional deans in an attempt to acquire a better understanding of the prospects for graduate growth at the departmental level.

We found that all of the deans use similar criteria in determining which departments are best positioned to grow their Ph.D. programs in upcoming years. First and foremost, they all felt that departments that rely partially or wholly on external funding are much better positioned for fast growth than are departments that rely mostly or wholly on central funding. Almost all of the departments that can rely on external funding are in PBSci, Engineering, and SocSci. There are, however, a few departments in the Humanities and Arts that rely on central funding that are also in a

position to mount larger Ph.D. programs with only modest boosts in funding and little or no new FTE.

Aside from funding issues, the deans all rely on the following criteria in assessing the relative capacity of their departmental Ph.D. programs to grow: application rates, acceptance rates, completion rates, and placement rates to assess the quality of a program; and faculty work-load issues (including whether all faculty are mentoring Ph.D. students and whether the undergraduate curriculum is being impacted). They expect the Ph.D./Faculty ratios to be for the next three years. Although none of the deans had worked out a full-fledged blueprint for graduate growth within their respective divisions, all of them have begun to undertake a fine-grained analysis of their departments' capacity for graduate growth in anticipation of the Task Force's recommendations. We recommend that the deans be provided with data on Ph.D. / Faculty ratios and asked to provide an analysis and clear justification of what they expect the Ph.D./Faculty ratios to be for the next three years.

## **II. Allocation Subcommittee**

The charge of the Allocation subcommittee was to:

- a) Evaluate successful allocation models used by other UC campuses (or other universities) based on documentation and discussions with relevant administrators (Graduate Deans) at the campuses.
- b) Evaluate the cost/benefits of adopting any of these models or hybrid of these models at UCSC.

This subcommittee focused on three areas: block grant allocation policies for doctoral programs adopted by other UC campuses, a very preliminary approach for evaluating the impact of recent campus initiatives to increase Ph.D. enrollments, and programs adopted by other UC campuses to alleviate the disincentives to recruit and yield international Ph.D. students.

### **Block Allocation Models**

The allocation subcommittee discussed in some detail the basis of the different block allocation models on the various UC campuses. Typically, the graduate deans provide some assurance of stability of block allocations from year to year. Below we summarize the basis of the block grant formula at UCSC, UCI, UCSB, UCSD, and UCR and what the subcommittee identifies as desirable features of the various models that might be applied at our campus. For example, it would be useful to model our block allocations using other campuses' methodology to determine whether they lead to significant redistribution of support funding and the possible impacts (positive or negative) of any such redistribution. Time and analyst staff limits precluded doing such detailed modeling in the framework of the Task Force's charge, but the committee's work will constitute a focal point of the Graduate Division's follow-up strategic analysis and planning in Summer 2015. More data from the other campuses will be needed as well as analysis on our end to evaluate in detail whether the allocation models at the other UCs would be cost effective on our campus.

The following descriptions include notation of the committee's observations of the models and policies that deserve further consideration for adoption or adaptation at UCSC. Specifics of the strategies vary, but some commonalities include: allowing departments to keep the "carry-forward" of unspent funds, treatment of nonresident supplemental tuition (NRST) fellowship programs, guarantees of support with temporal and quantitative differences, weighting factors by discipline

and/or degrees, varying methods to establish total block allocation amounts, and incentives targeted at specific performance measures (i.e. time to degree completion).

### ***UC Santa Cruz (2014-15)***

*Enrollment:* 3-year average (projection for the upcoming year, the current year enrollment, and the previous year's enrollment) of Ph.D. and M.F.A. students (weighted 0.5 of Ph.D. enrollment); “Doc2A” students, i.e. >9 quarters past candidacy, are excluded

*Degrees awarded:* 3-year average of degrees awarded (three previous years)

*To provide stability* for planning multi-year awards, programs are guaranteed no less than 80% of funding from an “index” year for the following 3 years

### ***UC Irvine (2013-14)***

40% weight on Total Ph.D. enrollments (decreasing coefficient used\*)

\* (Ph.D.’s: Arts, Hum - yr 1 & 2 = 1; yr 3+ = .8)

(Ph.D.’s: SOB, SE, SS - yr 1 & 2 = 1; yr 3+ = .67)

(Ph.D.’s: Bio, ICS, Eng, PS, Education - yr 1 & 2 = 1; yr 3+ = .5)

(M.F.A.’s: .80)

15% weight on New Enrollment - three year average - fall SIS

5% weight on Total enrollment weighted \* - three year average - fall SIS

35% weight on Ph.D. degrees awarded - three year average

5% weight on master’s degrees awarded - three year average

Multi-year offers are

made Carry-over:

unlimited Bridge-funding  
program

NRST: international students are charged NRST during the first year only

Enhance block by 5% in exchange for the submission of a plan to improve degree completion and time-to-degree. Future fellowship block enhancement is tied to successful implementation of the plan.

### ***UC Santa Barbara (2015-16)***

*Enrollment:*

2.7 \* 3-year average Doc1, Doc2, M.F.A. (Doc2A >9 quarters past candidacy are excluded)

0.9 \* 3-year average MA/MS (excluding M.F.A.)

*Program performance:*

2.7 \* total Ph.D./M.F.A. degrees awarded in most recent three years

Weighting factor for resource availability by discipline (e.g., ASE, GSR, etc.)

Smoothing factor (year-to-year)

Augmentation for diversity-related activities

Carry-over: unlimited

International Doctoral Fellowship Program (IRDF): Payment of NRST: Tuition for all international students beyond the first year of residency.

### *UC San Diego (2011)*

Guaranteed minimum support per student

Three-year rolling average for unmet need (by discipline) — for every \$1 of unmet need, program receives \$.20 subsidy

Average TA \* 0.5, GSR, and fellowship/trainee \$ over previous 3 years TA funding is weighted at 50% since it is “less valuable” from a graduate student perspective

Provision for enrollment growth Performance/merit adjustments based on

- (a) Placement of recent graduates
- (b) Time to degree
- (c) Quality of admitted students
- (d) Diversity
- (e) Response to external reviews

Equity- Higher per-student allocation to departments with lower per-student resources from other sources (TA, GSR, fellowship)

Carry-over: 20%

The committee found several attractive features to the UCSD allocation model, most importantly, that it factors into *both equity as well as performance*

### *UC Riverside*

UC Riverside uses a cohort-based model of allocating block grant support. Each incoming cohort is funded for seven years with funding obligations shared between programs and the Grad Division. The model is funded per program and is based on per-student average. The model is different for departments that have substantial extramural funds compared to those that have less. The following explains the model in more detail:

1. The Provost provides funding to the Graduate dean for each new entering cohort:
  - Most funds are distributed to graduate programs based on the size of their entering cohort (and other discipline-specific factors);
  - Some funds are held back by the dean as a contingency and for out-year support needs (such as dissertation year fellowships);
  - The funding can be used only for students in that entering cohort and remains with the graduate dean for up to seven years (after which any unexpended balances are returned to the Provost) — any funding not needed for graduate students in the specific entering cohort is returned to the Provost.
2. The Graduate dean works closely with each graduate program to:
  - Set an enrollment target for each entering master’s and doctoral cohort;
  - Establish a level of “block grant”-like support allocation appropriate to that discipline;

- Monitor key indicators/metrics of program performance;
  - Reconcile the funding allocated/used on a cohort-by-cohort basis — in that this funding is “attached” to individual students associated with the cohort.
3. The program is required to:
- *At least* match central “block funding” with departmental funding;
  - Assemble multi-year support packages for the entering doctoral cohort from the “block funding” provided by the Graduate dean (which is fungible across fiscal years up to the normative time-to-degree for that discipline), from departmental funding, and from extramural funds;
  - Ensure the success of each graduate cohort.

The allocation subcommittee had a fair amount of discussion about the cohort model as UCR has significantly increased their graduate student population in recent years. At this point it is not clear whether extra funds were provided per student upon adaptation of the cohort model or whether the change in allocation formula played a significant role in the graduate student number increase. Thus to evaluate whether this model would be effective on our campus, it would be essential to obtain more funding information about the UCR cohort model, specifically, the average \$ amount per student across the different programs, and compare to what we might be able to offer at UCSC using a similar formula. Adapting this type of model would mean a lot more flexibility and responsibility at the department level; however, it may also require more extensive management at the central level.

***Carry-over of unspent Block Allocation funds to the subsequent year:***

UC Santa Cruz: none UC

Davis: 10%

UC Irvine: unlimited

UCLA: 10% up to maximum of \$50K UCSB:  
unlimited

UCSD: 20%

UC Riverside: not relevant for cohort funding model

**Evaluation of the effectiveness of the current initiatives at UCSC by the Graduate Division**

The Allocation subcommittee sought to evaluate the effectiveness of Ph.D. student support initiatives taken by the Graduate Division in recent years to raise enrollments. These incentive programs are elaborated in the document, “Graduate Growth Initiatives: A Program User's Guide” (dated 9/9/14) which states, “... we have sought to offer a diverse palette of options, some of which may be more relevant to certain programs than others...” The palette includes Dean’s Fellowships (DFs), augmented strategic funding to the block allocation (ABA), master’s Programs Incentive (MPI), Non-Resident Tuition Fellowships (NRTF), GSR Non-Resident Tuition Mitigation (NRTM), and Increased TA Allocations to Divisions (ITA).

The Graduate Division has been pro-active in promoting growth and has consulted each Ph.D. program and tailored a bundle of options from the above list for each program’s admissions cycle for F13, F14, and F15. The tailored bundles in some cases may have also had other goals such as increasing enrollments of highly qualified non-resident students, retention of existing students and reducing time to degree.

***Impact of Graduate Division incentives on first year Ph.D. enrollments***

To learn from experience, we could take a look, year-by-year and program-by-program, at how first year Ph.D. enrollment (FYE) and other goals responded to the chosen bundle of DFs, ABA, MIP, NRTFs, NRTM, and ITA. For example, one could regress deviations from trend in first year enrollment (DFYE) on the deviations (DDF, DABA, etc) from the baseline bundle for that program. The regression coefficients could be scaled to provide rough estimates of the bang-per-buck (bpb) seen for each incentive. Such estimates would be a very rough guide even with several years of data for each of the roughly 30 Ph.D. programs because the bundles are not randomly chosen. The campus would then be in a better position to assess which incentives to expand, which to drop, and get some hints on what sorts of new incentives might be effective at promoting graduate growth.

The hard-working staff of the Graduate Division assembled data on outputs: the number of new Ph.D. enrollments by program from fall 2004 through fall 2014. Unfortunately, accessible records of the full array of bundles or their intended purpose were not available for inclusion in our analysis at this time. The only input data currently available to us by program and year were Dean's Fellowships offered for the fall 2013 new enrollments. We look forward to soon obtaining data by program and year on ABA, MIP (though we presume it first became a significant factor for the fall 2015 enrollment), NRTFs, NRTMs, or ITAs.

As a test of this kind of computation, we sought to analyze the "Dean's Fellowships" incentive packages that were piloted in 2013 and, on the basis of program feedback and Graduate Division's assessment, not subsequently continued. Only in Engineering was the bang per fellowship (bpf) for fall 2013 consistently in excess of 1. In other divisions, the only other programs with bpf above 1.0 were Physics, Mathematics, Politics and Psychology. The following year, in absence of DFs, the input DDF was negative or zero, and new enrollments indeed declined. However, declines were not consistently larger in programs that had lots of DFs the previous year.

This exercise may have some methodological value, but we are unable to learn much of substance by including data for a single initiative from amongst several undertaken. There is a hint of leverage in Engineering and a few other programs, but only a hint. We have no idea of the relative effectiveness of the various incentives. To determine the effectiveness of the incentives offered by the Graduate Division in recent years will require data by program and year for the other incentives (ABA, MIP, NRTFs, NRTMs, or ITAs) and closer analysis. Furthermore, by collecting and tabulating the decisions made each year with each program, we could begin to make evidence-based decisions for the future. This discussion will continue in the Graduate Division's summer planning; further work is needed to develop the most useful models for assessing initiatives and, where necessary, may require new ways of aggregating DGS data to facilitate such analysis of impact on graduate growth.

**Mitigation of the Impact of the NRST on Ph.D. Program Excellence and Growth**

The UC Academic Council "Report of the Task force on Competitiveness of Academic Graduate Student Support," June 2012, emphasized the central role of non-resident supplemental tuition (NRST) in UC's uncompetitive support for Ph.D. students. First among the Report's identified consequences of the NRST is that it distorts admission decisions and reduces student quality and diversity. The NRST also absorbs support funding that could be used for stipends and distorts employment decisions regarding graduate students. Lastly, other UC campuses have taken strong measures to mitigate or eliminate NRST for doctoral students, so that failure to reduce its impact

may exacerbate competitive disadvantages with respect to our UC sister campuses and other peer institutions.

The Academic Council task force recommended waiving the NRST for Ph.D. students while recognizing that current budgetary limitations may necessitate intermediate steps: increasing the number of years NRST is waived for international Ph.D. students and foregoing future increases in tuition for international doctoral students. While the second of these temporary alleviation measures regards system-wide policy, increasing the number of years that NRST is waived for international students is within the capacity of the campuses.

Several other UC campuses recently adopted programs that mitigate the NRST for international students enrolled in Ph.D. programs after the first year. Some examples of these programs are:

#### ***UCSB***

- Beginning fall 2015, **all** admitted international students receive UCSB International Doctoral Recruitment Fellowships (IDRFs).
- These cover the NRST for the fourth quarter of residency through to advancement to candidacy, provided that the student is within the official time to advancement as determined by the Graduate Council and advertised on the Graduate Division website.
- UCSB IDRFs are not available for master's students.

#### ***UCSD***

- As of fall 2013, NRST funds for first-year students is rebated to departments. This will grow to include NRST for second and third year students at steady state.

#### ***UCD***

- Effective fall, 2014, the campus will return 100% of NRST for pre-candidacy doctoral students in their 2<sup>nd</sup> and 3<sup>rd</sup> years and M.F.A. students in their 2<sup>nd</sup> and 3<sup>rd</sup> years
- Funds will return to the research grant if NRST is paid for GSRs (increasing the NRST buy-down to 100% for the affected students)
- Funds will return to the graduate program for all other affected students
- Funds may be used to award financial support to students or to pay for the cost of instruction for graduate courses (e.g. faculty buy-out for interdisciplinary programs)

#### ***UCM***

- NRST is covered for all internally funded academic Ph.D. students, i.e. TA-ships, UC fellowships of all kinds, and internally funded research assistantships. NRST is covered for any grant that forbids NRST charges, such as state grants and some private foundations. UCM has never collected revenue from outside the campus in any of the above cases.
- Grants are charged NRST when allowable. However, the number of such charges has been very small to date.
- NRST is currently charged with no plans to change the policy for master's students of all kinds, professional Ph.D. students, and Ph.D. students who are funded by non-UC fellowships (e.g. foreign governments).

Having analyzed these different campus models, the subcommittee explored the scenario of creating a fellowship program at UCSC that would provide for the payment of the NRST for all international doctoral students beyond their first year of residency who have not yet advanced to candidacy. This scenario follows the recently adopted program at UCSB. The direct impacts of the program are:

- It would eliminate the need for programs to use block grant funds to pay the NRST for continuing Ph.D. students.
- It would eliminate the share of NRST for continuing international Ph.D. students charged to extramural grants (currently 25%).
- It would remove the distortion in Ph.D. student employment that disfavors appointing international Ph.D. students to TA-ships relative to GSRs.

The costs to students or to programs of admitting domestic and international non-residents will be equal, reducing the disincentives to admit students on the basis of citizenship or permanent residency rather than on demonstrated ability and promise. This fellowship program will raise the quality of Ph.D. students by making it easier to recruit students without regard to nationality and contribute to doctoral enrollment growth by increasing our ability to offer competitive support packages to admitted students.

Uncertainty facing programs regarding their capacity to support continuing international Ph.D. students will be reduced significantly. The proposed change can reduce the uncertainty in making multi-year offers because the relative proportions of international and domestic students accepting offers will not affect the cost of supporting continuing students.

### **Estimated Budget Effects**

The program would phase in over time. If UCSC adopts an IDRf program for Ph.D. student recruitment for 2016-17, NRST would begin to be covered by the IDRfs in 2017-18. The total amount of NRST covered will progressively rise as additional international Ph.D. students enter the second year of residency until students admitted in 2016-17 reach their last year before advancing to candidacy. For example, for candidacy at the end of the third year in a Ph.D. program, an international student admitted for 2016-17 would receive an NRST fellowship for two years, 2017-18 and 2018-19. The IDRf mitigation of the NRST would then be in full effect in 2018-19.

As of fall 2014, the total enrollment of Ph.D. students in their second year of study and beyond at UCSC (i.e. excluding all first-year Ph.D. students) was 1015. Of these, 159 are international students. The Office of Planning and Budget reports that the entirety of the NRST paid by all graduate students at UCSC is returned to graduate student aid.

The total amount of NRST assessed to Ph.D. students from the second-year on for 2013-14 was \$880,950 (est.). This amount is overwhelmingly paid by block grant funds. By comparison, NRST revenues from non-professional master's degree programs was \$609,114 and from graduate professional programs was \$53,572. The net cost of the proposed IDRf program to Ph.D. program support would be due solely to the elimination of the 25% charge to extramural grants for NRST.

### **III.Incentives Subcommittee**

The Incentives subcommittee focused on incentives to faculty for increasing the number of graduate students with whom they interact. These incentives can be provided through two different mechanisms: the academic personnel review and promotion process, and the departmental workload policies. The committee reviewed both system-wide Academic Personnel policies, those of UCSC and the other UC campuses. The subcommittee also reviewed all of UCSC's departmental workload policies.

There were four main findings from this review.

**1. Unlike most other UC campuses, UCSC** does not further define in the local Campus Academic Personnel Manual (CAPM) policy the criteria for advancement set forth in the system-wide APM 210 policy. APM 210 is vaguely written and does not specifically address graduate education. Campus-level policies at other UCs speak to this issue by clearly highlighting the importance of demonstrating activity in graduate education for successful merit and promotion reviews. Examples include:

UC Berkeley: From the Procedure for Appointment or Promotion to the Rank of Associate Professor or Professor APM 220-85: “With a recommendation for promotion to tenure rank, the chair shall include the following information in the chair's detailed statement: ... (2) the nature and extent of the faculty member's responsibilities in guidance of students in research toward a graduate or professional degree ... ”

UCI has several policies related to graduate education and faculty advancement that give guidance such as “mentoring and advising of graduate students are normal expectations for Academic Senate faculty” and their review process policies.

UCSD policy states, “The appointee’s success in obtaining support for research and other creative activity, including support for graduate students, should be addressed.” “In addition to an evaluation of regularly scheduled undergraduate and graduate classes ... discussion of: undergraduate research students, master’s and doctoral candidates, postdoctoral or medical fellows, interns and residents, and any other students mentored outside of the structured classroom setting; and the appointee’s role (e.g., thesis adviser, research adviser) for each student.”

**2. The UCSC Committee on Academic Personnel (CAP) maintains guidelines** for compiling successful personnel files on our campus but the guidelines do not highlight the important role of graduate education directly as do those of other UC campuses. For example, in our campus’ “Tips for chairs and deans” the only mention of graduate education is as follows:

“Highlight student achievements and post-graduation trajectories for Ph.D. and MA advisees.”

On the other hand, the “Tips for faculty” only mentions:

“Teaching: Summarize course offerings, new preparations, innovative teaching practices, training grants, co-teaching, and mentoring of undergraduates and/or graduate students, in the context of expectations and needs in your department. ***Not everyone will have all of these elements in their teaching profile, but most faculty are likely to have some contributions in addition to their classroom teaching.*** For mentoring activity, be clear about which students completed their degrees during the review period and your role in their mentoring process—including, if possible, their later career trajectories.” (*emphasis added*)

*This wording suggests that graduate student instruction is optional. Wording from other campuses is much stronger:*

UCB: Guidelines on the Evaluation of Graduate Student mentoring in Faculty Performance Review

UCR: Faculty Merit Checklist

UCSD: “Course load and student direction” form used for personnel reviews includes a “Ph.D.s completed” section.

**3. Departmental workload policies vary** dramatically across divisions, and even within a division. However, one commonality is that very few departments discuss differential workloads that take into consideration the number of graduate students advised or research activity that results in increased graduate student mentoring loads. Some workload policies are clearly out of date and appear to have been written before the department had a graduate program.

**4. “Full service faculty that teach across the curriculum”** is a phrase that has recently been used on our campus, including by the EVC. This phrase has multiple possible interpretations; one is the typical “at least one Lower Division, one Upper Division and one Graduate class every year on average.” A different interpretation would simply differentiate between undergraduate and graduate student teaching and allow research faculty to focus on upper division teaching and graduate student teaching and mentoring and entrust more of the undergraduate courses to LSOEs. There is a lack of clarity among faculty as to the most appropriate interpretation for this phrase and its impact on the ability of departments to advise graduate students.

#### **IV. Professional Development Subcommittee**

The subcommittee was charged primarily with identifying practices, resources, and needs across the campus for professional development of graduate students, both inside and outside the academy. The subcommittee’s focus was to identify the current departmental/divisional resources for graduate student professional development and professional development needs; examine the resources for graduate students in relation to non-academic career options; and (to a lesser extent) assess the fundraising efforts for graduate student growth on campus.

The chief objective of the Professional Development Subcommittee was to survey and assess what kinds of professional training different graduate programs offer to their students, in order to gain a larger view of the trajectory that UCSC graduate students are on, or are enabled to take. While our analysis was focused on the program/faculty perspective, the student experience/perspective is inevitably part of the equation.

#### **Data**

The subcommittee’s major work was developing a survey that went out to the graduate directors of the thirty-nine graduate programs on campus. The subcommittee also examined a campus report on professional development opportunities based on the UCSC Graduate Student Survey (2011, the most recent available). The goal was to provide multiple perspectives about what resources exist on campus and what is further needed, as well as capture a sense of department cultures and commitments in regard to graduate professional development and, more broadly, graduate growth.

## **UCSC Faculty Graduate Directors Survey**

The subcommittee's "Faculty Graduate Director Survey" consisted of questions in four thematic areas: professional development, department culture, tracking career pathways, and campus-wide resources ([Appendix II](#)). The survey was first sent out on April 21, 2015 through the Graduate Division. Of thirty-nine graduate programs, twenty-eight participated (a nearly 72% response rate), and included responses from all five academic divisions.

### **Survey Findings**

#### ***Professional Development***

Almost all departments identified professional development activities that they offer for their graduate students, but they varied widely in their emphasis. Department offerings include grant writing courses, professional development workshops, TA training/pedagogy courses, and faculty mentoring. Overall, preparation for alternative academic careers was not something widely mentioned by respondents in this section of the survey.

When asked about salient professional development needs of their graduate students, several key suggestions emerged. Departments mentioned the need for more formal advising regarding career paths outside of academia (although not all agreed), additional funding for professional development training, more mentoring by faculty, more staff support, and resources to offer professional development and writing courses more frequently.

In response to the question about what resources a program utilizes to identify non-academic career options, there was a mix of responses including: Institute for Humanities Research, alumni, personal connections, email listserv, career fairs, and faculty mentoring.

#### ***Department Culture***

This portion of the survey asked two questions. The first centered on a department's perspective on alternative, non-tenure track career placement, and the second focused on the attitude about graduate growth. In terms of recognizing the possibility (or inevitability) of Ph.D. graduates seeking or gaining non-academic positions, the responses from program directors ranged from: no engagement with the idea, no discussions within a department, some discussion within a department, deliberate awareness about Ph.D. graduates pursuing non-tenure track jobs, active preparation for an alternative career path, and specific expectation that many of a program's graduates find industry jobs.

Particular departments, notably in Engineering, Social Sciences, and Physical and Biological Sciences, are very successful in placing their graduates in jobs outside of academia, and other departments encourage their students to find jobs in high-tech industries. Among graduate programs in the Arts, there is an open acknowledgement of and appreciation for graduates to move on to work in the art, music, and culture industries (which may include other kinds of teaching). Furthermore, many departments stated the willingness to support students/graduates who do not end up in tenure track positions, though they noted either the under-exploration of the phenomenon or the absence of concerted preparation to take this career track. Finally, some departments explicitly expressed a commitment to train Ph.D.'s, with the hope of adding to the next generation of the professoriate.

In terms of departments' perspectives on graduate growth, there was only one department that could

state with confidence that their program is “positive” about growing. Almost unilaterally, UCSC graduate programs state the need for funding/sustaining the graduate students (current and incoming), requesting more fellowships, TA-ships, GSR/graduate student research positions, and other grant opportunities. It is a stark message: graduate student growth and expansion could happen, conditional to there being funding. This is the responsible, ethical, reasonable frame for accepting and encouraging graduate growth. As one program articulated, there is a need to “temper desire for graduate growth with the possibility of overstretching our resources.” The desire to grow graduate programs at UCSC is present; however, the ability and planning are not yet in place.

A few other notes culled from the survey regarding the size of graduate programs included: an acceptance of small cohorts by design due to limited faculty and/or limited funding resources; a concern about the quality of applicants/admitted students; and a question about the pacing of growth.

### ***Tracking Career Pathways***

Excepting one, all departments reported tracking Ph.D. graduate placement at least “in part,” although several respondents said tracking is “uneven,” “informal,” or “haphazard.” Many departments track the first year or two and/or the first employment post-degree; after that, respondents note the data are liable to become less accurate or up-to-date. Some departments admitted they try to track but need to “do a better job” about keeping up to date information regarding Ph.D. placement, or would appreciate support from the Graduate Division in this effort.

All departments that engage in tracking Ph.D. students responded that they track both tenure-track and non-tenure-track positions, suggesting that the bias toward tenure track positions at UCSC may be less prevalent than at many other institutions.

Two departments stood out as potential models for best practices with respect to doctoral tracking. One department noted, “We participated in the [disciplinary association’s] new tracking initiative and now have 10 years of solid data on our Ph.D.s. Prior to this, there was more informal tracking...” Since many departments at UCSC engage in “informal” or “self-reporting” tracking, looking at this department as a case study may illuminate how to get other departments to move toward keeping “solid data.” Another Humanities department reported it keeps a database that is updated annually, and this may present another model for tracking career pathways of graduate students.

What departments did with collected data and tracking was limited and uniform: almost all reported the data were “listed on website,” although it is not clear how often departmental websites are updated with this information. A few select departments responded that they made a list of contacts available to recent graduates for networking purposes; one mentioned it was used in external reviews. Such responses suggest there may be more effective ways to make use of these data.

### ***Campus-Wide Resources***

Departments across campus vary in their awareness of campus resources for graduate professional development, and some departments unfortunately have no awareness of campus resources. The majority of the departments are aware that local/divisional resources exist, and some departments – although not many – are aware of the resources provided by the Career Center and Graduate Division. This suggests that better communication is needed across campus to highlight the

professional development services and resources that already exist.

In our survey, departments were asked which campus resources they would like to add to help support their departments' graduate professional development efforts. Perhaps not surprisingly, the following three emerged as top departmental priorities:

1. Non-academic career preparation services (workshops, panels)
2. Graduate focus at the Career Center (currently perceived as serving the undergraduates only)
3. Funding for graduate students (fellowships, research assistantships, conference funding)

### **Other Studies Examined**

There are two studies that we considered in our discussions, the 2011 UCSC Graduate Student Survey and the Graduate Student Happiness & Well-Being Report (2014) recently released by Berkeley. We understand that the health of graduate programs is directly related to the health and well-being of graduate students, and that there is a philosophical and practical link between providing professional development resources and graduate growth.

According to the 2011 UCSC Graduate Student Survey, graduate students reported feeling ill-equipped professionally for both academic and non-academic careers:

Students who were in doctoral programs (Ph.D. respondents) reported irregular availability and shortage of professional development classes/workshops in the following four areas: a) writing and publishing scholarly articles, b) conducting dissertation research, c) conducting academic and d) non-academic job searches.

Furthermore, this UCSC-specific survey found that female students and students of color felt significantly less prepared than their male and/or white colleagues, and that feeling “well prepared to engage in various professional tasks... was associated with student perceptions of supportive climate in the department.” Such findings “suggest that providing all students with more opportunities to improve their professional preparation for academic and non-academic employment is an important step in creating a more inclusive environment for a diverse graduate student population.”

Given the findings of the recent and widely-circulated 2014 Berkeley Graduate Student Happiness & Well-Being Report, the urgency of investing in graduate student professional development and career-related resources is clear. Among many other findings, including that 47% of Ph.D. students and 37% of master's and professional students qualify as clinically depressed (a number that jumps to 64% for graduate students in the Arts & Humanities), the Report correlates graduate student well-being with expectations regarding future employability.

### **Summary for Professional Development**

Many departments report that they would offer professional development opportunities but for lack of training, staff, and resources (especially when addressing non-academic career preparation). Further research is needed into best practices across campus. There are department models that are widely seen as successful, and there is at least one division that is opting to address the question of professional development divisionally (Humanities - through the Institute for Humanities Research

(IHR). The divisional approach may be an interesting one to think about given that one centralized place could interact and coordinate with the Grad Division and Career Center, rather than having that conversation spread across 30+ departments.

### Appendix I

Scenario 1 – Low Ratios

#### Doctoral Students per Ladder-Rank Faculty - UCSC

		Fall 2011			Fall 2012			Fall 2013			Fall 2014			2011-2014 Average	Capacity Scenario (based on Fall 2014 faculty)		Rebenching Faculty Growth ‡	Additional Ph.D. Studets	Total	2012-13 Comparison Data (for broad discipline only, based on faculty FTE not headcount)										
															Select a similar UC campus (using drop-down menu)	Target Ratio	Doctoral Student Capacity			UCSC Custom Value	Berkeley	Davis	Irvine	Los Angeles	Merced	Riverside	San Diego	Santa Barbara	Santa Cruz	
Engineering/CS	ComputerEngineering	16	46	2.88	15	45	3.00	15	59	3.93	14	66	4.71		UCSC Custom Valu	4.75	67			4.75										
	Computer Sciences	24	113	4.71	24	98	4.08	20	101	5.05	22	97	4.41		UCSC Custom Valu	4.75	105			4.75										
	Electrical Engineering	14	66	4.71	13	59	4.54	13	67	5.15	13	59	4.54		UCSC Custom Valu	4.75	62			4.75										
	Technology/Management	4	8	2.00	4	10	2.50	3	11	3.67	3	8	2.67		UCSC Custom Valu	4.75	14			4.75										
	<b>Engineering/CS Subtotal</b>	<b>58</b>	<b>233</b>	<b>4.02</b>	<b>56</b>	<b>212</b>	<b>3.79</b>	<b>51</b>	<b>238</b>	<b>4.67</b>	<b>52</b>	<b>230</b>	<b>4.42</b>	<b>4.22</b>	<b>New ratio:</b>	<b>4.75</b>	<b>247</b>	<b>8</b>	<b>38</b>	<b>285</b>	<b>5.83</b>	<b>3.48</b>	<b>4.46</b>	<b>5.67</b>	<b>1.85</b>	<b>4.15</b>	<b>5.03</b>	<b>3.53</b>	<b>3.05</b>	<b>4.12</b>
Fine Arts	Art	10		0.00	10		0.00	10		0.00	9				UCSC Custom Valu	1.33	12			1.33										
	Film & Digital Media	18	7	0.39	16	11	0.69	15	18	1.20	17	17			UCSC Custom Valu	1.33	23			1.33										
	History of Art and Visual Culture	11	7	0.64	10	11	1.10	10	15	1.50	10	20			UCSC Custom Valu	2.00	13			1.33										
	Music	14	28	2.00	13	24	1.85	14	27	1.93	12	27			UCSC Custom Valu	1.33	16			1.33										
	TheaterArts	11		0.00	12		0.00	12		0.00	12				UCSC Custom Valu	1.33	16			1.33										
<b>Fine Arts Subtotal</b>	<b>64</b>	<b>42</b>	<b>0.66</b>	<b>61</b>	<b>46</b>	<b>0.75</b>	<b>61</b>	<b>60</b>	<b>0.98</b>	<b>60</b>	<b>64</b>	<b>1.07</b>	<b>0.87</b>	<b>New ratio:</b>	<b>1.33</b>	<b>80</b>	<b>2</b>	<b>3</b>	<b>82</b>	<b>2.59</b>	<b>0.74</b>	<b>0.44</b>	<b>1.62</b>	<b>0.86</b>	<b>1.75</b>	<b>1.87</b>	<b>0.74</b>	<b>1.33</b>		
Humanities	American Studies	2		0.00											UCSC Custom Valu	2.51	-			2.51										
	General - Humanities	7		0.00	7		0.00	7		0.00	6		0.00		UCSC Custom Valu	2.51	15			2.51										
	Feminist Studies	21		0.00	24		0.00	27	2	0.07	27	8	0.30		UCSC Custom Valu	2.51	68			2.51										
	History	4	31	7.75	2	34	17.00	2	26	13.00	1	33	33.00		UCSC Custom Valu	2.51	3			2.51										
	Languages & Applied Linguistics	3		0.00	3		0.00	3		0.00	5				UCSC Custom Valu	2.51	13			2.51										
	Linguistics	11	21	1.91	12	20	1.67	13	19	1.46	13	18	1.38		UCSC Custom Valu	2.51	33			2.51										
	Literature	29	63	2.17	30	61	2.03	29	57	1.97	30	56	1.87		UCSC Custom Valu	2.51	75			2.51										
	Philosophy	7	16	2.29	7	10	1.43	7	10	1.43	9	13	1.44		UCSC Custom Valu	2.51	23			2.51										
	<b>Humanities Subtotal</b>	<b>81</b>	<b>131</b>	<b>1.62</b>	<b>85</b>	<b>125</b>	<b>1.47</b>	<b>88</b>	<b>114</b>	<b>1.30</b>	<b>91</b>	<b>128</b>	<b>1.41</b>	<b>1.45</b>	<b>New ratio:</b>	<b>2.51</b>	<b>228</b>	<b>2</b>	<b>5</b>	<b>233</b>	<b>3.91</b>	<b>2.42</b>	<b>2.04</b>	<b>2.86</b>	<b>2.48</b>	<b>2.27</b>	<b>2.57</b>	<b>1.54</b>	<b>2.51</b>	
Life Sciences	Biomolecular Engineering/Bioinfor	9	35	3.89	10	38	3.80	9	39	4.33	9	39	4.33		UCSC Custom Valu	4.50	41			4.50										
	Ecology & Evolutionary Biology	17	60	3.53	19	63	3.32	19	78	4.11	21	67	3.19		UCSC Custom Valu	3.50	74			3.50										
	Environmental Studies	15	41	2.73	16	42	2.63	18	47	2.61	18	46	2.56		UCSC Custom Valu	3.00	54			3.50										
	Microbiology & Environmental Tox	7	18	2.57	7	18	2.57	7	17	2.43	7	16	2.29		UCSC Custom Valu	3.00	21			3.00										
	Molecular & Cell Developmnt Biolo	23	53	2.30	22	52	2.36	22	51	2.32	23	47	2.04		UCSC Custom Valu	3.00	69			3.00										
<b>Life Sciences Subtotal</b>	<b>71</b>	<b>207</b>	<b>2.92</b>	<b>74</b>	<b>213</b>	<b>2.88</b>	<b>75</b>	<b>232</b>	<b>3.09</b>	<b>78</b>	<b>215</b>	<b>2.76</b>	<b>2.91</b>	<b>New ratio:</b>	<b>3.31</b>	<b>258</b>	<b>6</b>	<b>20</b>	<b>278</b>	<b>4.93</b>	<b>3.01</b>	<b>3.74</b>	<b>12.34</b>	<b>2.81</b>	<b>2.41</b>	<b>6.95</b>	<b>2.54</b>	<b>3.22</b>	<b>4.66 total average</b> <b>3.28 non med-school average</b>	
Physical Sciences	Applied Math & Statistics	11	35	3.18	11	40	3.64	11	45	4.09	12	42	3.50		UCSC Custom Valu	4.50	54			4.50										
	Astronomy & Astrophysics	19	37	1.95	20	37	1.85	21	33	1.57	18	29	1.61		UCSC Custom Valu	3.00	54			3.00										
	Chemistry and Biochemistry	22	92	4.18	21	90	4.29	20	85	4.25	20	86	4.30		UCSC Custom Valu	4.50	90			4.50										
	Earth & Planetary Sciences	20	53	2.65	19	52	2.74	18	54	3.00	18	50	2.78		UCSC Custom Valu	3.50	63			3.50										
	Mathematics	15	35	2.33	15	36	2.40	13	38	2.92	15	38	2.53		UCSC Custom Valu	3.00	45			3.00										
	Ocean Sciences	7	35	5.00	7	33	4.71	7	35	5.00	8	34	4.25		UCSC Custom Valu	4.50	36			4.50										
	Physics	22	54	2.45	22	51	2.32	21	57	2.71	19	52	2.74		UCSC Custom Valu	3.50	67			4.00										
	<b>Physical Sciences Subtotal</b>	<b>116</b>	<b>341</b>	<b>2.94</b>	<b>115</b>	<b>339</b>	<b>2.95</b>	<b>110</b>	<b>347</b>	<b>3.15</b>	<b>110</b>	<b>331</b>	<b>3.01</b>	<b>3.01</b>	<b>New ratio:</b>	<b>3.71</b>	<b>409</b>	<b>7</b>	<b>28</b>	<b>437</b>	<b>5.78</b>	<b>3.45</b>	<b>3.81</b>	<b>3.35</b>	<b>1.93</b>	<b>3.68</b>	<b>3.19</b>	<b>4.38</b>	<b>2.82</b>	<b>3.60</b>
	Social Sciences	Anthropology Department	21	46	2.19	19	46	2.42	22	44	2.00	20	43	2.15		UCSC Custom Valu	2.75	55			2.75									
Community Studies		2		0.00											UCSC Custom Valu	2.75	-			2.75										
Economics Department		19	75	3.95	16	68	4.25	19	70	3.68	20	57	2.85		UCSC Custom Valu	2.75	55			2.75										
Latin American/Latino Studies		10		0.00	10		0.00	10		0.00	11	4	0.36		UCSC Custom Valu	2.75	30			2.75										
Politics		11	31	2.82	11	27	2.45	12	34	2.83	13	32	2.46		UCSC Custom Valu	2.75	36			2.75										
Psychology		24	65	2.71	23	59	2.57	24	61	2.54	26	58	2.23		UCSC Custom Valu	2.75	72			2.75										
<b>Social Sciences Subtotal</b>	<b>103</b>	<b>257</b>	<b>2.50</b>	<b>93</b>	<b>237</b>	<b>2.55</b>	<b>100</b>	<b>247</b>	<b>2.47</b>	<b>101</b>	<b>228</b>	<b>2.26</b>	<b>2.44</b>	<b>New ratio:</b>	<b>2.75</b>	<b>278</b>	<b>9</b>	<b>25</b>	<b>303</b>	<b>3.14</b>	<b>2.33</b>	<b>2.86</b>	<b>2.91</b>	<b>1.16</b>	<b>2.22</b>	<b>2.35</b>	<b>2.25</b>	<b>1.80</b>	<b>2.34</b>	
Professional	Education	16	35	2.19	16	33	2.06	15	31	2.07	14	30	2.14		UCSC Custom Valu	2.75	39			2.75										
<b>Professional Subtotal</b>	<b>16</b>	<b>35</b>	<b>2.19</b>	<b>16</b>	<b>33</b>	<b>2.06</b>	<b>15</b>	<b>31</b>	<b>2.07</b>	<b>14</b>	<b>30</b>	<b>2.14</b>	<b>2.11</b>	<b>New ratio:</b>	<b>2.75</b>	<b>39</b>	<b>-</b>	<b>-</b>	<b>39</b>	<b>2.09</b>	<b>1.12</b>	<b>1.42</b>	<b>1.85</b>	<b>2.45</b>	<b>2.51</b>	<b>5.05</b>	<b>1.88</b>	<b>2.30</b>		
Other	History of Consciousness	3	34	11.33	4	31	7.75	2	33	16.50	3	27	9.00		UCSC Custom Valu	11.00	33			11.00										
<b>Other Subtotal</b>	<b>3</b>	<b>34</b>	<b>11.33</b>	<b>4</b>	<b>31</b>	<b>7.75</b>	<b>2</b>	<b>33</b>	<b>16.50</b>	<b>3</b>	<b>27</b>	<b>9.00</b>	<b>11.15</b>	<b>New ratio:</b>	<b>11.00</b>	<b>33</b>	<b>-</b>	<b>-</b>	<b>33</b>	<b>7.47</b>	<b>2.38</b>	<b>2.09</b>	<b>50.00</b>	<b>3.17</b>	<b>3.00</b>	<b>16.00</b>	<b>9.33</b>			
<b>Campus Total</b>	<b>512</b>	<b>1280</b>	<b>2.50</b>	<b>503</b>	<b>1236</b>	<b>2.46</b>	<b>501</b>	<b>1302</b>	<b>2.60</b>	<b>508</b>	<b>1253</b>	<b>2.47</b>		<b>Total Doctoral Students:</b>	<b>1,571</b>	<b>34</b>	<b>118</b>	<b>1,689</b>	<b>4.18</b>	<b>2.71</b>	<b>2.87</b>	<b>3.62</b>	<b>1.85</b>	<b>2.67</b>	<b>3.45</b>	<b>3.06</b>	<b>2.29</b>			

\* Discipline subtotals and campus totals are unduplicated headcounts (faculty who have more than one appointment may be counted in more than one department but the discipline subtotals and campus total will only count each faculty once). ‡ Faculty allocations within Life Sciences and Physical Sciences is solely heuristic, and do not reflect planned FTE requests.



## Appendix II

### Faculty Grad Director Survey: Graduate Student Professional Development April 2015

Dear Department Faculty Graduate Directors,

The Joint Senate-Administrative Task Force on Graduate Growth (JTFFGG) was convened on the UCSC campus earlier this year to address campus plans for expansion of graduate enrollments, primarily in academic doctoral programs (but may also consider broader graduate growth issues).

A subcommittee of this wider task force is charged with identifying practices, resources, and needs across the campus for professional development of graduate students, both inside and outside the academy. This subcommittee is now seeking your assistance, as Graduate Director of your program/department to help us identify the salient issues related to professional development of primarily doctoral and M.F.A. students.

Please take some time to carefully consider our questions and **respond to the survey by May 1, 2015**. The questions are separated by broad thematic areas. Your answers will be used by the task force to identify professional development needs across the campus, as well as faculty opinion related to professional development. These responses will help us formulate a report and make recommendations to the Senate and Administration. Responses identifying salient themes, needs, and recommendations will be aggregated at the divisional level.

Please remember that we are particularly interested in doctoral and M.F.A. professional development.

**Questions about the survey should be directed to Esthela Bañuelos ([esthela@ucsc.edu](mailto:esthela@ucsc.edu)).** Thank you for your participation, and for submitting your **responses by May 1, 2015**.

Sincerely,

**Tyrus Miller**, Vice Provost and Dean of Graduate Studies & Co-Chair, JTFFGG  
**L.S. Kim**, Chair, Professional Development Subcommittee, JTFFGG

Questions

#### Professional Development

1. Please describe what your department does to support professional development for your graduate students, including preparation for alternative academic or non-tenure track careers. For example, does your department offer courses, grant/fellowship writing support, brown bags, teaching opportunities, pedagogical training, and/or opportunities to learn about alternative academic pathways?
2. What are the most salient professional development needs of your graduate students? What does your department need to better address these?
3. Does your department offer grant/fellowship writing training to your graduate students? Please describe.
4. What resources does your graduate program utilize to identify non-academic career options?

Department Culture and Professional Development

1. What is the general faculty perspective in your department on alternative, non-tenure track career placement for your Ph.D. graduates?
2. What is the general faculty perspective in your department on graduate growth?

Tracking Career Pathways

1. Does your department keep track of its Ph.D. graduate placement? Please explain.
2. Does your department track graduates who (check one)
  - a. obtain tenure track jobs
  - b. obtain non-tenure track positions (inside and outside the academy)
  - c. both
3. How does your department use information collected about your Ph.D. graduate placement? (Check all that apply)
  - a. List on our website
  - b. Make a contacts list available to graduates for network building
  - c. Compile information for alumni engagement purposes
  - d. Other: please describe.

Campus-wide Resources

1. What additional campus resources for graduate professional development are you aware of on campus? Be specific (i.e. specific career center resources, graduate division resources, divisional resources)
2. What additional campus resources do you feel are needed to support your graduate student professional development needs?
3. If you could add one campus resource to help support your department's graduate professional development efforts, what would that be?

**JOINT SENATE-ADMINISTRATION TASK FORCE  
ON GRADUATE GROWTH**

Growth in graduate enrollments has been the aim of the campus for several years. This goal was enunciated in the 2002 Academic Senate resolution calling for 15 percent of total enrollment to be composed of graduate students. The UC rebenching process also calls for growth in graduate enrollments in academic doctoral programs, establishing the goal of 12 percent of undergraduate enrollments. UC Santa Cruz is well below either level of enrollment. Some plans to increase these numbers have already been implemented but additional programs will be needed.

An academic plan must begin with determination of feasible targets and timetables for growing graduate enrollments, while maintaining academic quality, increasing research excellence, enhancing undergraduate education, and enhancing UCSC's reputation. Plans must also take into account the ability of programs to attract and recruit applicants as well as the opportunities for employment for those who complete the programs.

The Joint Senate-Administrative Task Force on Graduate Growth will address campus plans for expansion of graduate enrollments, primarily in academic doctoral programs but should also consider broader graduate growth issues.

**Objectives of the Task Force**

- Assess targets and timetables to achieve the 12 percent doctoral/undergraduate and 15 percent graduate total enrollment goals, given campus resources (financial and workload), policies, and culture.
- Assess the number and types of programs needed to meet the goals set by the Task Force.
- Assess the effectiveness of resource allocation, incentive programs, and policies currently employed to support and increase graduate enrollments. These programs include TA allocations, block allocations, masters incentive program, multi-year commitments, teaching fellowships, external grant support and other funding.
- Assess the trade-offs the campus will face in promoting graduate growth and possible ways the campus can mitigate these costs.

## **Membership**

### Co-Chairs

Ólöf Einarsdóttir  
Tyrus Miller

### Senate

Abel Rodriguez, Committee on Planning and Budget representative  
Dan Friedman, Committee on Planning and Budget representative  
Judith Habicht-Mauche, Committee on Research representative  
Ken Kletzer, Graduate Council representative  
Roberto Manduchi, Graduate Council representative  
L.S. Kim, Faculty-at-Large  
Mark Cioc, Faculty-at-Large

### Administration

Peggy Delaney, Vice Chancellor of Planning and Budget  
Joel Ferguson, Senior International Officer  
Sheldon Kamieniecki, Dean of Social Sciences  
Paul Koch, Dean of Physical and Biological Sciences  
Herbie Lee, Vice Provost for Academic Affairs  
Irena Polic, Institute for Humanities Research Associate Director  
Ashish Sahni, Associate Chancellor

### Other

Kristin Miller, Graduate Student representative  
Whitney DeVos, Graduate Student representative  
With special thanks to Galen Jarvinen, Special Assistant to Planning and Budget