The Size and Shape of UCR 2020

Working Paper
June 2010

This working paper defines size and shape as encompassing the following topics: the optimal size of UC Riverside; the size of the lower-division, upper division, and graduate student populations; the distribution of students by college and majors; the number and size of graduate programs; the organization of the colleges and departments, the number of interdepartmental graduate programs; and the number and type of research centers on campus.

I. Background

UC-Riverside has grown rapidly over the last 20 years. Starting in the early 1990's, when enrollment was 8,700, UCR experienced a decade of rapid growth. This was viewed as central to achieving a secure place in the UC system for the campus, to bring necessary improvements in campus infrastructure, and to increase opportunities for California secondary school students. The campus strategy involved advocacy of larger enrollment targets and marketing UCR as a campus particularly open to undergraduate student diversity. These strategies worked to the extent that UCR has been one of the fastest-growing campuses in the system. With a student population of nearly 19,500, it is now also the most diverse.

Some costs were associated with this rapid expansion. For example, the rapid expansion of undergraduate enrollment made it difficult for our campus to make any real long-term headway in increasing the proportion of graduate students at UCR. Likewise, enrollment growth outstripped the necessary expansion in campus infrastructure.

During the growth cycle, faculty hiring was driven to a large extent by student workload. This was followed by a period (2002-08) during which UCR's focus was on investing in "niche" programs, leading to the proliferation of small units. This strategy led to a large number of relatively small departments and programs, few of which have the critical mass to compete at the national level. Together, these two cycles led to a somewhat ad hoc pattern of growth. Some positive features of the University of California system (such as the merit system and relatively generous retirement programs) allowed UCR to maintain a high-quality faculty, but unmanaged growth permitted achievement of national recognition in only a handful of fields.

In recent years, State support has declined and will not likely increase again for several years. Moreover, the "rules of the game" have changed with respect to both State funding and UCOP's allocation practices among the campuses; the net result is that UCR now has doubled its proportional share of UC's unfunded students for which we receive no State support. This, combined with higher than expected enrollments in 2009 and 2010, higher than expected retention, and extensive budget cuts, have resulted in unprecedented pressures in meeting student demand. The campus is stretched quite thin in providing the resources to service 19,500 students.

UCR must now shift its focus from an enrollment management perspective that encouraged rapid growth to an approach that is more strategic. Faculty hires – currently limited due to state budget constraints – must also be made strategically. Future growth should be managed in a thoughtful way, building on existing strengths and directed by strategic planning.

II. The Future Size of UC Riverside

Without additional resources for unfunded students, UCR's undergraduate growth may need to slow significantly over the next few years. Renewed growth could occur by mid-decade, but it is too early to tell how much growth will be possible. The Office of Enrollment Management must engage with the schools and colleges to determine the optimum number of students within various units and majors, and to set appropriate standards of selectivity while maintaining the highly valued diversity of the campus.

In doing so, UCR must align its admissions targets with its resources and the realities of the new higher education "marketplace." Whereas in 1990-91 UCR students contributed 13 percent of the cost of their education, in 2010-11 students are paying almost 50 percent of the cost of their education. Thus, while student satisfaction has always mattered, UCR's overall fate as a healthy and vibrant institution will become more tightly intertwined with student and alumni satisfaction than ever before. Conversely, over-enrollment will stress scarce resources, including academic advising and TAships, and may impact students' time to degree. Thus, careful enrollment management is critical.

At the same time, UCR must increase graduate and professional school enrollments. The campus has much lower graduate enrollments than its AAU comparison institutions. However, it can only improve this profile to the extent that funding is available for competitive packages. That will depend on increases in successful grant submissions and, to a lesser extent, philanthropy directed toward graduate fellowships.

III. Distribution of Students: Lower-Division, Upper-Division and Graduate

In keeping with the profile of an AAU member institution, UCR has established a goal of increasing the proportion of graduate students to approximately 18-20 percent of total enrollment. To fulfill the role of a research university as envisioned by the Master Plan, UCR should develop a profile of 40 percent lower-division and 60 percent upper-division students. These proportions put an emphasis on higher-level teaching, appropriate to a research university, and provide additional opportunities for community college transfers, as foreseen by the Master Plan.

In 2010, UCR undergraduates were split 50:50 between lower division and upper division students. Moreover, graduate students hovered at 12-13 percent of full-year student enrollment. Translating Master Plan and campus goals to UCR's anticipated full-year enrollment for 2010-11 would mean approximately 1,700 fewer lower-division students, 1,700 additional upper-division students and – holding undergraduate enrollment constant – the addition of about 1,250 graduate students to reach the 18 percent threshold. Of course, such changes are not possible within a

short time frame, but the above figures provide a sense of scale implied by these long-term changes in the size and shape of our campus.

To achieve these goals, UCR can adjust its admissions index to enroll fewer lower division students, while recruiting more actively among community college transfer students to increase the proportion of upper-division students. Such changes would have a positive impact on the campus's four- and six-year graduation rates. UCR can increase the number of graduate and professional students by increasing the number of professional master's programs, opening new professional schools, and by adding Ph.D. students supported by extramural funding. To be consistent with the profile of an AAU member institution, the dominant focus should be on adding professional and Ph.D. students in programs that are, or can soon become, nationally competitive.

IV. Distribution of Undergraduate Students by College and Division

Data from the UC Undergraduate Experience Survey (UCUES) confirm that UCR students are more likely to self-identify "weak math skills" as an "obstacle" to their academic success than students at any other UC campus except for Merced. Because introductory mathematics is a barrier, many students admitted to CNAS and BCOE are unable to major in their intended fields. Historically, about one-third of students admitted to CNAS and BCOE complete their degrees in those colleges; one-third leave UCR, and one-third complete a major in CHASS. A similar pattern is evident among students intending to major in business.

To reverse these trends, CNAS and BCOE have raised admissions standards for first-time freshmen, and SoBA has raised admissions requirements into the business major. BCOE is also considering a pre-engineering major to bring under-prepared students up to speed to pursue an engineering degree. This would require five years, but the students would end up in their desired major. First generation and low-income students – of which UCR has many – are generally less likely to have sound "college knowledge" about what it will take to succeed in various fields and may require special services to help them navigate the system. Changes can help to reduce the disappointments and attrition due to poor matches between student aspirations and curricular requirements.

It will be equally important to develop good matches between students admitted to CHASS and the requirements for success in CHASS majors. A strategy that might be considered with respect to CHASS is to increase the focus on grades in non-math subjects (which comprise most of the 'A-G' college preparatory curriculum) and/or scores on the verbal and writing sections of the SAT. Social sciences and humanities serve as a source of "profit" in virtually all large state universities, because per-pupil costs of instruction are low and student demand is high. However, this does not reduce the obligation of the university to match its teaching resources to the numbers of students admitted to its majors, in order to optimize the quality of undergraduate education. A part of the solution is to find ways to maximize the advantages of social science and humanities majors' capacities to build analytical and critical thinking skills that are important in a variety of professional occupations.

A particular quality issue arises in the case of interdisciplinary studies. Grades for students in interdisciplinary studies are significantly below those of other students at UCR. Rather than achieving their original intention of providing a home for ambitious students whose interests lay at the intersection of two fields, these programs often serve as majors of last resort for ill-prepared and/or unfocused students.

V. Appointments, Merits and Promotions

A basic principle is that a comprehensive research university such as UCR develops strength from its core departments. Core departments are those that hold high standards for professional recognition based on rigorous disciplinary knowledge bases, well-established theories, and sophisticated methods of analysis. The most widely institutionalized core fields in U.S. colleges and universities include the natural science fields of mathematics, physics, chemistry, and biology/life sciences. They include the social science fields of economics, political science, psychology, and sociology. They include the humanities fields of English, foreign languages and literatures, history, and philosophy. And they include the arts fields of drama, music, and visual art. As a land grant university, UCR also has as part of its mission the development of strength in applied fields, such as agriculture and engineering, which serve the citizens of the state and region.

The single most important step UCR can take to improve its reputation for academic excellence is to hire and tenure only outstanding scholars. To attain the profile of an AAU member institution by 2020, the hiring, merit, and promotion processes must be held at a consistently high level, from departments to deans to CAP, and to the Provost and Chancellor.

Departments and programs must demonstrate a consistent propensity to reward excellence and to refuse to reward mediocre performance. Strong departments also have national stature, educate significant numbers of students, promote only academically excellent scholars, and have strong overall records of faculty productivity as measured by AAU first-phase indicators. These strong departments and programs should have the opportunity to grow and flourish. Deans and department chairs will play critical roles in propelling UCR forward to 2020 by fostering a culture in which scholarly excellence is both expected and rewarded.

In the short term, new hiring will take place primarily from resources freed by retirements and separations. Unfilled lines are scarce in CHASS and are currently being used to fund lecturers. Unfilled lines are currently being used to fund lecturers and TAS in CNAS and to help fund start-ups in both CNAS and BCOE. As new faculty recruitment begins once again to ramp up, an effort should be made to balance among a variety of factors, including the need to create or expand critical mass in key areas of strength; to respond to student teaching load; to grow the sciences and engineering, which have a higher likelihood of generating extramural funding; to invest in the humanities, arts, and social sciences, which is necessary in any outstanding comprehensive research university; to support education and business, which meet a critical need for the state and region; and to invest in areas of strategic priority, as identified in *UCR 2020*.

V. Doctoral Programs

The size of graduate programs should follow from the following basic considerations: 1) program excellence (as measured by AAU criteria and NRC rankings), 2) quality of applicants and admitted students, 3) placement of graduate students following awarding of the Ph.D. degree, 4) availability of extramural grant support, and 5) number of undergraduate credit hours taught. Graduate programs should be large enough to meet the opportunities available to graduate students for research assistantships. Distinguished programs should have the opportunity to train more students. At the same time, graduate programs must be large enough to serve the needs of the undergraduate instructional program. Another criterion for the future will be alignment of graduate programs with strategic plan priority areas. Incentives for alignment will occur as university investments in designated priority areas begin to take shape.

Faculty members should have a passion for teaching and research. In their role as graduate teachers, they perform the very important function of preparing the next generation of scientists and scholars. NRC rankings of graduate programs are based largely on the quality of the faculty. Thus, it is expected that faculty mentoring graduate students will have productive, nationally recognized research programs. Such faculty can help students working with them to obtain positions following their training.

In some departments, leading faculty members prefer to employ post-doctoral fellows rather than working with graduate students. This is entirely understandable from an efficiency perspective, but it fails to advance the University's stated intention to achieve the profile of an AAU member institution by 2020. The Graduate Division and the academic deans should initiate discussions with departments about the appropriate mix of graduate students and post-docs on faculty research projects.

In the future, the University will need to make rigorous evaluations of graduate programs based on an assessment of whether programs have the critical mass of faculty to compete nationally at the level of top 50 universities. If they do not, two options should be considered. One is consolidation of several related programs to increase critical mass. The other is contraction to achieve a small, but high quality program.

VI. Professional Master's Programs

Many universities have improved their financial circumstances through the development of professional master's programs. UCR has opportunities in the School of Business Administration, Bourns College of Engineering, and Graduate School of Education, and will develop additional opportunities over the next decade as students are trained in the new School of Public Policy.

Important trade-offs must be considered before developing additional new professional master's programs. Teaching resources are finite, and at the graduate level teaching can be directed toward professional master's students or Ph.D. students, but often not both. As a research university, with aspirations to achieve the profile of an AAU member institution, UCR should therefore be very careful about the development of professional master's programs.

When strong and unmet student demand exists in fields where students are willing to pay the full price of education, such programs are potentially beneficial to the university. The strategic planning subcommittee reports and the faculty survey include some interesting ideas that warrant further investigation. Where these criteria are unmet, however, professional master's programs can be a drain on university graduate teaching resources at a time when the university can least afford it. Self-supporting master's programs that include teaching by qualified Extension instructors are an additional way of mitigating these resource concerns.

VII. College Organization

To both maximize administrative/resource efficiencies and to reflect future directions in broad disciplines, UCR must consider the optimal organizational structure for its schools and colleges. Concerns have been raised about the two large undergraduate colleges, CHASS and CNAS, in regard to college structure. Few campuses have agricultural science programs joined to life and physical science programs. In addition, UCR's physical science faculty members are at a numeric disadvantage in relation to life sciences faculty. The dual reporting relationship of UCR's agricultural programs to the campus and UCOP, in particular, necessitates that the dean must spend a large percentage of his time focused on agricultural and natural resources. Similarly, some social science faculty members report a sense of disadvantage in relation to the arts and humanities in CHASS. Despite the large numbers of students taught by social science faculty, arts and humanities programs are more numerous. Finally, the large size and scope of CNAS and CHASS may make them unwieldy for their respective deans to manage.

For these reasons, significant numbers of faculty members in both CNAS and CHASS have advocated splitting the colleges by division. Breaking the two largest colleges along divisional lines would be costly, and would not necessarily lead to the improvements foreseen by advocates of reorganization. Such college-level reorganizations require careful and vigorous analysis of tradeoffs and unintended consequences. Instead of aggregating resources, the risk is that these changes could have the consequence of dividing resources and, perhaps, making the most discontented divisions less, rather than more, influential. The principle of "form follows function" should be strongly considered in any such deliberation.

An alternative to dividing the two largest colleges along divisional lines would be to develop one large college of arts and sciences, with powerful divisional deans, following the model employed at UC Berkeley and the University of Michigan. Some savings would be possible through the elimination of one of the dean positions and through consolidation of staffs. It is questionable, however, whether the realized cost savings would override the disruption caused by such a change.

It will be important early in the implementation of the strategic plan to determine whether or not to reorganize the two large colleges, because any reorganization will have an impact the allocation of resources to accomplish the campus' strategic priorities. The Implementation Committee may commission a task force (or perhaps two – one for each college) to conduct an in-depth study of the college structures and make recommendations. The task force(s) might be made up of UCR faculty and administrators, faculty and administrators from other UC campuses

who would not have a vested interested in the outcome, or a combination thereof. The ultimate goal is to have college structures in which all departments and programs can realize their potential.

VIII. Department Organization

Many departments at UCR are too small to achieve national recognition as top 50 departments, or do not include enough eminent scholars to do so. Academic personnel actions may become problematic because too few faculty members are eligible to vote on a file. In some cases, consolidations can help to create critical mass that strengthens newly formed or redefined departments. Because of established work relationships, such consolidations should be proposed only in exceptional cases. The promise of new appointments by the deans or central administration can be an incentive to encourage creative thinking. To succeed, such consolidations must serve the intellectual and practical interests of faculty members.

Other factors may lead to consideration of reorganization among departments. The Academic Excellence Subcommittee of the strategic plan, for example, concluded that the life sciences at UCR do not reflect a 21st century organization of biological science. Phyla-based departments have given way, throughout academe, to departments that focus on basic life processes at the micro or macro levels. Problems include redundancy of expertise, competition among closely related departments for the same graduate students, and mismatch with funding priorities in science. Accordingly, a committee is recommended to consider reorganizing the life sciences at UCR to reflect 21st century structures of knowledge generation and transmission.

IX. Interdepartmental Graduate Programs

Strong departments are the foundation for a strong university. At the same time, many pivotal topics in science and scholarship are situated at the borders of more than one discipline. Moreover, funding agencies have consistently shown preference in recent years for research that combines the talents and expertise of professors drawn from multiple disciplines. Undoubtedly, interdepartmental graduate programs will become important elements of graduate study over the next decade.

UCR has several interdepartmental programs that have historically shown strong records of success. However, as noted by the Graduate Education Subcommittee, these programs present difficulties both for students and faculty members, who must negotiate interactions across more than one department as well as across several administrative units. Unlike most departmentally-based graduate programs, many interdepartmental graduate programs suffer from lack of ownership.

Many aspects of the current structures regulating interdepartmental programs are inefficient and needlessly complex. New arrangements will be necessary to facilitate interdisciplinary teaching and research. The Graduate Education Subcommittee has recommended the formation of a task force to examine mechanisms for facilitating the activities of interdepartmental graduate programs. A survey of best practices at other institutions would be an important part of the charge of such a task force.

X. Research Centers

Productive research centers and institutes are the heart of great research universities. Several of the research centers at UCR appear to be performing relatively well. Some have as yet incompletely realized potential. Still others are virtually inactive.

Overall, the research centers at UCR form a disparate group with minimal supervision and fiscal oversight. A high priority will therefore be to gain a better understanding of the activities of the research centers, including the analysis of the costs and benefits of each, along with realistic outcomes to be expected from further investment in each one. The Office of Research should develop a clear definition of what it means to be a center, including purposes, available resources, and expectations for contributions to UCR's research, teaching, and service mission.

In 2020, UCR will likely have at least as many research centers. However, currently inactive centers will be allowed to sunset over the next several years, and new centers, aligned with campus strategic priority areas, will open to take their place. The scale of these centers will naturally depend on the success of faculty members associated with the center, led by entrepreneurial center directors, in obtaining extramural support for their activities.