Introduction

As the University of California, Riverside plots its path to achieve the status of an AAU institution, the College of Natural and Agricultural Science is clearly a vital player. It is arguably the oldest college of the university and the college that defines the public image of the university. It has also been the cradle of today’s campus: The College of Engineering was spun off from the department of computer science in CNAS, and the Biomedical Division, the foundation for the new School of Medicine, was also part of CNAS. The college today is actually smaller by about 10 faculty than it was 20 years ago, but the student body of the college is well over twice what it was at that time, and the average number of graduate students per faculty member is today roughly 60% greater than it was in 1990, now averaging more than 3 students per faculty member.

In addition to the increased teaching responsibilities of CNAS faculty, their extramural grant income has increased dramatically as well. Between FY09 and FY10, the college’s extramural sponsored awards increased by 36%, from $47,212,701 to $64,057,581. During the first seven months of the current year (FY11) expenditures were up over 10% from last year, indicating a continuing trend. This increase in grant activity is clearly a consequence of the college successfully recruiting outstanding faculty into strategically defined areas that are well funded by the federal government.

This year (2010-11) is the first year that UCR has been selective in admissions beyond the UC eligibility criteria. Because the faculty of CNAS committed to recruiting undergraduates, we have met our target for fall 2011 while maintaining a high AIS cutoff. Prior growth in enrollments in UCR has been defined by who walks in the door and registers. But today, given our enormous over-enrollment challenges, it is time to engage in a serious debate with the objective of right-sizing all the colleges and programs. In CNAS, we simply have too many students for the number of faculty. Programs have grown without control, and the college historically has committed all available funds (all budgeted teaching funds plus all funds in open faculty lines) and much more to teaching these students, with the result that we have accrued deficits. We are now in the position that, to pay back the deficit and free up cash to run the college, we have no choice but to make extreme cuts in our teaching expenditures and research support, and return a number of our open faculty lines as part of the current cut scenario. Our objective is to align the college with the resources that we are supplied to discharge our mission of teaching, research and outreach.

As part of our vision for the future of CNAS, we will focus hiring in select programs of excellence. We will be a somewhat smaller college, with significantly fewer incoming freshmen and similar or slightly larger numbers of graduate students. We will move from four-year
graduation rates in the range of 30% to four-year rates in the range of 70%, and six-year
graduation rates of 80% or higher. This transition will require roughly 4-6 years, but in the
process, even though our numbers of incoming freshmen will decline sharply, overall, our
numbers of students will decline only marginally. Success of this scenario will require close
collaboration with our colleagues in BCOE, as engineering students are primarily ours for the
first two years. We must all ramp up admission standards together, and that will require the
same commitment to recruiting in engineering as we have in the sciences.

Priority Areas for the College

The college recently drafted a five-year strategic plan in which we listed six priority areas, each
aligned with the campus strategic plan. These priority areas are listed below with the current
departments that have faculty working in the area.

Secure and Sustainable Food Supply
  Botany & Plant Science
  Entomology
  Plant Pathology & Microbiology
  Nematology
  Environmental Science
  Biochemistry

Nanoscale and Molecular Materials for a Sustainable Future
  Physics & Astronomy
  Chemistry

Human Health and Well Being
  Biochemistry
  Cell Biology & Neuroscience
  Chemistry
  Biology

Global Climate and Environmental Change
  Biology
  Earth Science
  Environmental Science
  Chemistry
  Entomology
  Botany & Plant Science

Origin Studies: Humanity’s Quest for Understanding our Place in the Universe
  Physics & Astronomy
  Biology
  Entomology
  Botany & Plant Science
Core Foundations
  Mathematics
  Statistics
  Chemistry
  Physics & Astronomy
  Biology

The current structure of the college, including our traditional degree programs, does not align in an obvious way with these priority areas. A major challenge facing the college is to better align our faculty with our strategic priorities to form departments and programs that accurately define the future, rather than the history, of science. We do not expect large budgetary savings to come from such a reorganization; still, it is an important initiative and we are forming strategic working groups to make recommendations for more focused programs. We will then set a target faculty size for each grouping that can be achieved within perhaps five years. After a period of downsizing of both the faculty and the student body, we will be in a position to hire strategically to build excellence in all programs that exist at that time.

It is vitally important that the college undergo a major refocusing of our faculty resources on our research objectives. It is not clear that even our strongest programs should remain in their current structures; science is changing and departments need to change to remain current.

Overall Budget Picture

The college has been running a deficit for several years, largely due to increasing undergraduate enrollments without commensurate increases in our teaching budget. To stop over-expenditures and to repay the accrued deficit, the college has cut $4M permanently and will continue to roughly $2.5M per year for the next four years. These amount to a reduction of about 20% of our total budget less filled faculty lines before we get to the FY12 cuts. Note that we cannot cut the same thing twice, so before we get to the cuts of today, we must be mindful of what has already been eliminated.

To meet the mandated permanent reduction of $4M, we have taken a 20% reduction in TA and lecturer positions ($2.5 M), a variety of staff reductions ($1M), and initial complement funding mechanisms ($0.5 M). To accomplish a temporary reduction of $2.5M annually, we have already extracted $0.5M from departmental budgets, drastically reduced GSR support, reduced AES research support, closed APRC, and called upon faculty to cover a small portion of their salary on research grants and contracts. These actions have already been implemented, so to accomplish the new cuts mandated by the state of California, we will have to go elsewhere.

Proposed Budget Cuts

By the actions noted above, expenses have now been aligned with our permanent budget allocation. We expect to hire 12 new faculty as of July 1. Their initial complement packages will use most of CNAS’s expected F&A return in FY12. Starting in FY13 we propose to reduce the number of faculty hires from 10 to 5, thereby effecting the budget cut. This will save
approximately $1.26M in initial complement costs. In this first year (FY12) we are returning funding from open faculty lines worth $1.26M to help achieve the target budgetary reduction of $1.73M. We will cover the remainder by cutting another $300K from the budget for indirect teaching support, primarily by reducing personnel in the areas of academic advising and lab prep support. The final $140K will come from reducing subsidies to our core instrumentation facilities.

We will continue to subsidize the core research facilities with ~$1.26M by diverting F&A funds that are returned to the college beginning in FY13. These funds had been earmarked for the initial complements for the five faculty positions that are now being foregone.

The Organized Research (OR) budget (which supports the programs of the Agricultural Experiment Station) reduction of $1.036M will be achieved through the return of funding from open faculty lines and a cut in direct departmental allocations in FY12. These cuts will be made permanent in FY13, resulting in a decrease in research support for the AES mission.

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<th>I&amp;R Reductions</th>
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<tr>
<td>Return of funding in Open Faculty Lines</td>
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<tr>
<td>Indirect Teaching &amp; Lab Prep Costs</td>
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<tr>
<td>Subsidies to Core Facilities</td>
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<td><strong>Total</strong></td>
<td><strong>1,730,000</strong></td>
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<th>OR/AES Reductions</th>
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<td>Return of funding in Open Faculty Lines</td>
<td>948,000</td>
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<tr>
<td>Direct Departmental Allocations</td>
<td>88,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,036,000</strong></td>
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Consequences

During the past two decades, the number of CNAS faculty has remained nearly constant at about 250, with hiring serving to only replace retirements and other separations. This was during a time when our research programs were growing rapidly and our enrollments were skyrocketing. It is thus critical, particularly as we strive to achieve the profile of an AAU institution, that the size of the CNAS faculty be increased to support our enhanced research and teaching missions. With this in mind, our recently completed strategic plan identified 129 new positions to be filled. Given the overall budget situation, however, even prior to this new round of cuts our plan was to hire
new faculty at the rate of only 10 per year. When combined with the average attrition rate of 7 per year, this would have increased the faculty numbers very slowly, indeed, and given the need to increase our faculty by ca. 100 at current enrollments, the correction would require decades. The consequence of taking the new cuts by elimination of 5 faculty hires per year will actually mean a slow decrease in faculty numbers, which will diminish the ability of UCR to look like an AAU institution at any time in the foreseeable future.

Our indirect teaching support budget (advisors, academic coordinators, lab prep staff, administrative support of teaching, etc.) is more than $3.7 M annually. Cutting roughly 9% of that amount will cause additional difficulties for our students; however, these cuts should be partially mitigated by the expected increase in preparedness of the student body and planned reductions in the size of incoming classes.

Reducing funding for our Undergraduate Academic Advising Center is another very difficult choice, as the unit is already understaffed. However, as our incoming freshman class becomes smaller and better prepared academically, we should need fewer academic advisors. We will also move to a system whereby students will be assigned a faculty advisor after they have declared a major, and will rely on their faculty advisor during the junior and senior years, visiting the professional advisors only for degree checks and other such activities.

The budget reduction on the OR side will indeed have a serious negative impact on departments’ ability to hire faculty and provide support to faculty research. Our AES departments will be heavily impacted by faculty retirements over the next several years, and some of our highest ranked departments will shrink considerably as a consequence of loss in funding for faculty positions and faculty start-up funds. In evaluating the impact of cuts, one needs to recognize the unique mission and requirements for the agricultural research operation. The college spends significant amounts of money on the Agriculture Operations unit—the fields west of campus and in the Coachella Valley. These fields are laboratories for faculty in the same respect as chemistry and physics faculty are provided laboratories, and are costly for the college to maintain. If UCR is to maintain our land-grant mission, it is important that we protect as much of the experiment station budget as possible. And we need to focus that budget on faculty who are performing at the highest level, doing research that is mission critical for California agriculture and natural resources.