

Critical Analysis of the Graduate School NB Report:

The Case to Increase the Support of Doctoral Students Across the New-Brunswick-Piscataway Campuses of Rutgers, the State University of New Jersey by The Committee on Academic Planning and Review (CAPR)

The report of the Graduate School-NB makes the case that the quality and quantity of support for Ph.D. students in New Brunswick is not sufficient to allow Rutgers to rise to the next tier of research universities and if not corrected, "may compromise our ability to sustain the current level of excellence." This case is documented by historical support data at Rutgers and comparisons to our AAU peers. A ten year plan is proposed to increase support and remedy these deficiencies, with an approximate cost of twenty million dollars over the ten year time period.

CAPR wishes to commend the writers of the report for documenting the serious challenges Rutgers faces in graduate education and offering a set of well-reasoned proposals to deal with these challenges. A number of groups within Rutgers have recognized the central role of graduate education to the mission and reputation of the University and have endorsed the report. While endorsing the important goals set forth in the report, CAPR believes it is its role to evaluate the recommendations made in the report and express its views on priorities. Given the realities of competition for resources at the University, it is important to give priority to measures that will yield the greatest improvement in graduate education and the stature of Rutgers, and to pay attention to possible funding sources for increased support. Of particular importance are activities that lead to increased external support.

Our analysis focuses on several key areas.

1. Fellowship support: The report of the Graduate School documents that the "number of students supported on University fellowships has decreased over the past decade, as resources are cannibalized to offer fewer students fellowships with higher stipends." While CAPR agrees with the long term goal of increasing the number of students supported in their first and possibly last years of study, an immediate high priority is to stabilize the number of fellowships. It is expected that funds for new fellowships can be raised as part of the next capital campaign. However, this is many years away and CAPR believes that our graduate programs cannot even sustain their current level of quality if continued cuts are made. Therefore, we recommend the following:

- That highest priority be given to stabilizing the number of fellowships at the level of 2004-2005 (base level for the GSNB document, preceding the latest rounds of cuts). The cost for fellowships currently managed by GSNB will be \$400,000 in 2006-2007.

- That stipends for all fellowships be upgraded to, and kept at, a level commensurate with the cost of living mandated for international students. The cost of upgrading all fellowships managed by individual decanal units in 2006-2007 will be \$277,000, since these stipends have remained at their 1998 levels. The cost of keeping fellowships at this upgraded level is projected to be \$250,000 annually for the fellowships now managed by the GSNB, and \$60,000 for fellowships currently managed by decanal units.
- That the University make graduate fellowships a high priority in the capital campaign; and that it initiate discussion with the State on restocking the Excellence Fellowships created in the 1980s.

2. CAPR strongly supports the thrust of the argument for the need to increase the number of TA positions across the University. Rutgers remains far more reliant on PTLs for instruction than our peer institutions and has many fewer TAs relative to its faculty and student body. While PTLs play an important role in instruction, over reliance on their service is detrimental to the quality of undergraduate education as well as the support of graduate students. TAs usually undergo some training in teaching before being allowed in the classroom. PTLs do not in general receive any training in instruction and are not beholden to the department in which they teach. An unfortunate part of the current situation is that in some departments, PTLs are simply unfunded graduate students from other departments.

In the long run, the University should work with the State to create additional TA positions. More immediately, decanal units should be encouraged to convert PTL positions into TAs in departments where these are needed for undergraduate instruction as well as graduate support. Since such conversion is quite costly, CAPR recommends that the University share the cost with individual decanal units. For example, the decanal unit may be responsible for the extra salary (for every two courses taught, a TA costs roughly \$10,000 more than PTLs), and fringe benefits, while Central would cover the student fees and tuition (which could be limited to a set number of credits). To decrease the cost to Central, this tuition might be charged to a Central account, thus eliminating the usual percentage given to the deans.

Note: In some circumstances, tuition is only a small real cost to the University, so Central's contribution would not be a substantial additional financial burden. For example, while tuition is a real cost, in the sense that it is lost, if a paying student or a student whose tuition is paid from a grant is converted to a TA, it may involve little marginal cost to the University, if it is for an additional student who would not have chosen Rutgers without such support. In particular, since graduate courses are often quite small, no additional faculty or classroom space is needed to support these additional TAs.

3. The GSNB and CAPR greatly appreciate the recent Central funding of major medical fees for all fellows and health benefits for all students supported on training grants. Providing major medical fees makes Rutgers' coverage comparable to the health coverage of fellows in peer institutions. Providing health benefits for students on training grants gives them comparable health coverage to their counterparts who are GAs on

external grants. The report of the GSNB also recommends a number of other items for increased support that are needed to attract the best students. These include full health coverage and fee remission for fellows (in order to generate compensation packages comparable to those of TAs), summer stipends, research accounts, and travel grants. The argument for remitting fees is that not remitting them is equivalent to a lower stipend, unless stipends are raised so that fellows can readily pay fees. The goal of the GSNB is that every new fellow in the sciences and engineering would be given a one-time research account, \$2000 in 2004-5 dollars. Outside of the sciences and engineering, the goal is that every new fellow would be given a summer stipend that is 2/10 of a 10-month TA salary (it is assumed that in the sciences and engineering, many fellows are already provided summer stipends). The GSNB estimates it would take at least 10 years to achieve these goals. Given the severe limitation on funding, it will be necessary to prioritize these needs. But here again, the measures employed should be adapted differentially to disciplinary needs. Some programs find the health coverage to be most important to their new students, while in other programs, summer stipends, research accounts, or travel grants to support research are the deciding factor in competing for the best students, and an effective way to make students more competitive for external awards, thereby resulting in a net gain for Rutgers.

A summary of the costs of each of these items for the projected number of students who would receive them, has been provided to CAPR by the GSNB. We compare the amounts that would be needed to fund these items in 2007-2008 with the amounts spent in 2004-2005, assuming no increase in the number of fellows. The projected cost to fund full health benefits for all 409 fellows is about \$1.1 million (at \$2715 per student). Only 30 students received this benefit in 2004-05. The projected cost to fund fee remission for 320 fellows (this number does not include those on training grants who may already be receiving fee remission) is about \$440,000 (at \$1370) per fellow. As an interim step for 2007-08, the GSNB recommends remitting only computer fees, at a total cost of \$80,000. A total of two months of summer stipends for 20 of the 70 new non-science fellows at \$3900 per student would cost \$78,000. Only about \$9,000 was spent in this category in 2004-05. Research accounts for 20 of the 90 new science fellows at \$2700 per student would cost \$54,000. In 2004-05, only about \$6,000 was spent in this category. Obviously, funding of summer stipends or research accounts for all new fellows would be much more costly. The projected cost to fund conference travel for 265 students (at \$400 per student) and travel for research at sites away from Rutgers for 70 students (at \$1350 per student) would be about \$200,000. In 2004-05, a total of about \$120,000 was spent in these categories.

4. CAPR strongly recommends activities that can bring in additional outside support, such as training grants. One proposal of the type made in the Graduate School's report, is to hire a grant specialist to help departments/units prepare proposals for outside support of graduate students. While Rutgers has had some success in competing for grants of this type, we believe that an experienced grant specialist would help increase the number of submissions and funded proposals, among other things by collecting the massive data required and developing prototypes for submissions to federal programs such as **IGERT**, **GAANN**, **NSF**, and **NIH**. Because training grants support multiple students for periods

of 3-4 years, and are renewable, a significant increase in successful submissions would increase the total pool of graduate funding and would greatly exceed the salary of the grant specialist. Documented success in such proposals also makes it more likely that future proposals will be funded. In fact, a grant specialist would also be valuable to the submission of other types of major grants, such as instrumentation grants.

5. The GSNB has documented that the number of GAs supported per million dollars of grant funding has been declining at a rate of about 3% per year. The main reason for this seems to be the large cost of supporting a GA, compared to supporting a post-doc. The current annual grant-funded cost of a calendar year Graduate Research Assistant (including stipend, benefits, overhead and 12 credits of out-of-state tuition) is approximately \$50,000. The corresponding annual cost for a postdoc is approximately \$80,000, but the research productivity of a Graduate Research Assistant, especially in the early years of training, is not even close to 5/8 of the research productivity of a postdoc. Given the increasing difficulty in obtaining grants (e.g., paylines of 15% or less at NIH, DoD, NSF, etc), faculty must perform more research in advance of submitting a proposal and, therefore, the research productivity of their laboratories is becoming increasingly important to the survival of individual faculty research. A critical point in graduate student support is fast approaching wherein faculty will strongly favor using grant funds to hire postdocs rather than support graduate students.

In light of these disincentives to support graduate students on grants, the GSNB recommends tuition remission, charging in-state instead of out-of-state tuition, and a reduction in the number of credits, and estimates that these measures will bring about an increase of 30% over 10 years in grant supported GAs, resulting both from increased proposals for outside support of graduate students, and from a greater share of grant funds being used to support graduate students.

CAPR agrees with the Graduate School Funding Report that appropriate use of tuition incentives is necessary to give faculty an incentive to shift some of their grant dollars away from post-docs to support of graduate students. However, while the main goal here is to increase the number of graduate students supported by grants, the University must also take into consideration the impact on overall funding. Some preliminary work in this direction has already been done by the GSNB. If one compares the total income that the University is likely to receive if we do not change the present model, with the income to the University generated by assuming a 3% per year increase in the number of GAs (expected to result from the tuition incentives described above), one finds the income levels roughly comparable over an eight-year period. In the present model, the income is based on F&A, tuition, and fees from GAs, (assuming a 3% per year decline in the number of GAs), together with the additional F&A that would be generated if all the funds no longer used to support GAs were used to support post-docs. In the model with tuition incentives, the lower income from reduced tuition is partially offset by an increase in the number of GAs. Thus, CAPR believes that the tuition incentives deserve serious consideration as a means of increasing the number of grant supported graduate students.

It may also be the case that the benefits of tuition reduction will differ by department. In some departments, it is clear that implementing these recommendations will have the effect of increasing the number of proposals for outside support of graduate students and perhaps the likelihood of their being funded. In other departments, this may not be the case and the net effect may be the loss of revenue to the University. (The greatest benefit from tuition reduction will likely be registered in disciplines where grants are typically small, such as the social sciences and humanities, math, theoretical computer science, statistics, theoretical physics, and non-medical biology, including Plant Biology and Ecology and Evolution.)

CAPR recommends that a more thorough study of the financial and academic cost/benefits in the various disciplines/departments be undertaken by the Graduate School and that the recommendations on tuition be implemented selectively where they are likely to produce increased revenue. We also recommend that attention be given to the effect of All-Funds-Budgeting, which give deans a significant incentive to base decisions on the net inflow of overhead and tuition to their unit, which may not always be in the overall best interests of the University.

6. One item under discussion has been the possible centralization of fellowships in the Graduate School. Currently, many reside in decanal units. The advantages of such a system are that it can reduce the risk of too many acceptances when over offers are made (especially in the smaller decanal units) and provides a way of attracting the best students across units. A major disadvantage is that it decouples the issue of fellowships from a Dean's prioritization of resources among departments. Decentralization of fellowship resources is critical to the academic planning of each decanal unit and should be extended to FAS after its separation from the GSNB. Some units also match fellowships with their own resources. Having these fellowships within their unit therefore provides an incentive for units to spend resources on graduate education rather than on postdoctoral researchers. CAPR does not support wholesale centralization of fellowships, but rather just those with specific goals that are best administered centrally, e.g., diversity fellowships. Instead, the GSNB should employ the pool of fellowship tuition in its possession to help back up offers in the smaller decanal units. A hybrid model in which stipend funds are allocated directly to deans, with the Graduate School responsible for managing all of the fellowship and tuition and medical fee remissions, also has advantages and is worthy of consideration.

7. Finally, CAPR notes that there is no discussion in the Graduate School's report about prioritization of funding among departments/units. While recognizing this is a delicate matter if one is trying to enlist a wide range of support, CAPR believes that the case for increased support is enhanced if the GSNB and the deans are willing to make hard choices regarding any increased funding and can document what this would do to enhance the graduate programs in specific departments.