

Report of the Review Committee for the Undergraduate Program in Neurobiology

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Ilene L. Bernstein, Professor, Psychology

Roy C. Page, Director, Regional Clinical Dental Research Center

Nicholas C. Spitzer, Professor, Division of Biology, UC San Diego

The undergraduate program in Neurobiology, funded by the UIF, is now in the middle of its third year of operation. It is the unanimous opinion of participating administrators, department chairs, faculty, and students that the program is remarkably successful in achieving its very ambitious goals. The program provides highly qualified undergraduates with specialized, high level training in neurobiology, from the molecular level to behavioral systems and neuropathology. It includes sophisticated laboratory classes in the first year of the program which equip students to become significantly involved in individual research projects in faculty laboratories in the subsequent year. We are extremely impressed with the thoughtful structuring of the program and its smooth operation at both academic and administrative levels. The limited opportunities for undergraduate study in neurobiology at this institution prior to the establishment of this program constituted a conspicuous gap. It now seems unthinkable that UW would not have an undergraduate program in Neurobiology given the strong neuroscience community at this institution. The program that is in place fills that gap, and does it so admirably that it seems clear that it should be continued and possibly enlarged.

Mechanisms for funding, such as the UIF, appear to be a necessary route to innovation. Although we recognize that the price of innovation can be high, we believe that without such sacrifices it would be impossible, in the present funding climate, to maintain and advance the standard of excellence for which the University of Washington is renowned. Efforts such as these should be judged by the extent to which they leverage the resources devoted to them by coalescing energies and collaborations across the institution. By that standard this program represents an excellent return on the investment. As a leading research institution the University of Washington has enormous, untapped potential educational opportunities for undergraduate students who are qualified to take advantage of them. Participation in research affords experiential learning and first hand participation in the acquisition of new knowledge. It is programs like the Neurobiology major which prepare students to benefit from these resources.

Strengths:

1. The Neurobiology UIF program is a model for the University of Washington in terms of what can be accomplished in undergraduate education. It enables students to participate in research programs and provide them with the tools for later independent scholarly research. The program transcends traditional boundaries to expose these students to aspects of their major that permit them to envision neurobiology in its broadest context. We agree with the Chair of the Steering Committee that this program affects more undergraduates, more deeply, than any other UIF project.

2. This program is also a model for its success in achieving joint commitment of the School of Medicine and the College of Arts and Sciences to this program, extending the historical tradition of interdisciplinary collaborations at the University of Washington. Such cooperation between units of the university, such as the School of Medicine and the College of Arts and Sciences, has often been difficult to achieve because of differences in their funding structure and culture. It is extraordinary how supportive participating Chairs and Deans are of this UIF funded program.
3. The leadership of the program is outstanding: Director Moody and Steering Committee Chair Catterall have played key roles in launching the program and refining its operation. The commitment of the Chairs of participating departments to the success of the program and the dedication of the teaching faculty are remarkable. The program is sufficiently flexible to allow department chairs to meet their commitments to the program in different ways.
4. A unique feature of this program is the opportunity to participate in experiential learning in cutting edge laboratories, which otherwise would have been unavailable. Rigorous, well designed laboratory courses prepare students for high level involvement in research.
5. High quality and diverse populations of students are accepted into the program, for which there is a large and increasing demand.

Concerns:

1. The program has inadequate infrastructure. For example, laboratory space is assigned on a temporary basis and administrative space in the Biology Program is limited. Office space for lab support personnel is remote, temporary and inadequate. There is apparently no comprehensive vision for replacement of faculty funded by the UIF, particularly with respect to the provision of set up funds.
2. There is a serious problem obtaining a sufficient number of TAs who have an adequate background for their crucial contributions to the program. This is a major obstacle to increasing student enrollment. At the same time, interactions between the undergraduate and graduate programs in Neurobiology appear to be limited. Closer links have the potential to resolve the TA shortage and to mutually enrich both programs.
3. About 60% of the students actively participate in projects in faculty research laboratories. While this seems high relative to many undergraduate majors, in our view it should be higher in light of the quality of the students and the emphasis of the program.

Recommendations:

1. The undergraduate program in Neurobiology should continue and its administration should remain in the College of Arts and Sciences.
2. The infrastructure needs to be improved, especially the provision of permanent funding and laboratory and administrative space.
3. We suggest that research involvement become a required component of the program.
4. Consideration should be given to enlarging the program to 72 students per year provided that an adequate number of qualified TAs can be recruited.
5. Interactions between the undergraduate and graduate programs in Neurobiology should be increased. In the course of our interviews several suggestions to accomplish this were provided, including joint seminars, graduate student mentoring of undergraduates, and undergraduate attendance at the annual Neurobiology and Behavior retreat.