July 16, 2010

A. Lorris Betz  
Senior Vice President for Health Sciences  
5th Floor, Bldg. Clinical Neurosciences Center  
Campus  

RE: Graduate Council Review  
Interdepartmental Program in Neuroscience  

Dear Vice President Betz:

Enclosed is the Graduate Council's review of the Interdepartmental Program in Neuroscience. Included in this review packet are the report prepared by the Graduate Council and the Memorandum of Understanding resulting from the review wrap-up meeting.

Please forward this review to the Academic Senate to be placed on the information calendar for the next meeting of the Senate.

Sincerely,

Charles A. Wight  
Dean, The Graduate School  

Encl.

XC: David W. Pershing, Senior Vice President for Academic Affairs  
    David J. Bjorkman, Dean, School of Medicine  
    Mary T. Lucero, Director, Neuroscience Program
The Graduate School—University of Utah

GRADUATE COUNCIL REPORT TO THE SENIOR VICE PRESIDENTS FOR HEALTH SCIENCES AND ACADEMIC AFFAIRS

February 22, 2010

The Graduate Council has completed its review of the Interdepartmental Graduate Program in Neuroscience. The External Review Committee included:

Michael Levine, Ph.D. (chair)
Chair, Neuroscience Graduate Program
Professor, Psychiatry and Biobehavioral Sciences
Semel Institute-UCLA

Frank L. Margolis, Ph.D.
Professor, Department of Anatomy and Neurobiology
University of Maryland

Alan F. Sved, Ph.D.
Professor and Chair, Department of Neuroscience
University of Pittsburgh

The Internal Review Committee of the University of Utah included:

Donald E. Ayer, Ph.D.
Professor
Department of Oncological Sciences

Christopher P. Hill, Ph.D.
Distinguished Professor
Department of Biochemistry

Carl S. Thummel, Ph.D.
Professor
Department of Human Genetics
This report is based on the 2002 Graduate Council review ad hoc committee report and memorandum of understanding, as well as the 2009 self-study report submitted by the Neuroscience Program, the reports of the internal and external review committees, and the responses from Mary T. Lucero, Director, Interdepartmental Neuroscience Program, and David J. Bjorkman, Dean of the School of Medicine.

PROGRAM PROFILE

Overview

Neuroscience is the scientific study of the nervous system. It has been traditionally viewed as limited to neurobiology, a branch of biology. Increasingly, however, progress in the study of neurobiology requires multidisciplinary approaches that draw from other areas such as electrophysiology, molecular biology, genetics, statistics, and the study of behavior and cognition. As a result, the study of neuroscience today requires an interdisciplinary approach which the Interdepartmental Program in Neuroscience at the University of Utah seeks to provide. The Program enrolled its first class in 1986.

Curriculum and Programs of Study

The Neuroscience Program is the only interdepartmental program which grants a Ph.D. degree at the University of Utah. Students must complete no fewer than three full years of approved graduate work, at least one year of full-time academic work in residency at the University, and a dissertation. The Program also grants a Master of Philosophy (M.Phil.) degree, which has the same qualifications for admission and scholarly achievement as the Ph.D. degree, but does not require a doctoral dissertation.

The core curriculum of the Neuroscience Program includes didactic sessions designed to provide a basic theoretical understanding of the electrical properties of the cell, development of the nervous system, systems-level function of the nervous system and basic cognitive psychology. Students conduct experiments during four half-semester laboratory rotations. The didactic sessions and laboratory rotations combine with neuroscience "boot camps" in which students learn electrophysiological and molecular biological techniques from acknowledged experts in the field. The University of Utah neuroscience community meets twice a year at local resorts in the Wasatch Mountains to hear talks from specialists to discuss selected topics of interest.

Faculty and Faculty Diversity

The Program is comprised of an executive committee made up of representatives from 15 departments and 73 participating faculty. These include 41 full professors, 14 associate professors, 15 assistant professors, and 3 non-tenure-track research faculty members. Overall academic administration is provided by Dr. Mary Lucero, the Program Director.
Faculty who wish to participate in the Program submit a letter of interest to the program indicating a willingness and ability to train graduate students, and to participate in the teaching and administrative functions of the Program. Faculty applicants must have a primary appointment in one of the participating departments, and the resources to both support and train students. In addition, the research interests of faculty applicants must be compatible with current program members so that such faculty can participate productively in teaching within the Program. Participating faculty are expected to undertake both teaching and administrative functions. Applications are evaluated by the Neuroscience Program Directorate Committee.

**Faculty Diversity:** 21 of the 73 participating faculty are women, and 4 of the 7 leadership positions in the Program are held by women. However, there are only two ethnic minority faculty members—a Hispanic and a Pacific Islander—among the 73 participating faculty.

**Students and Student Diversity**

There are a total of 49 graduate students currently enrolled in the Neuroscience Program. Total enrollment has increased steadily from 30 students in 2001-02 to 50 students in 2008-09. An average of 8 to 12 students enter the program each year. During the same 8-year period, the Program awarded a total of 38 degrees (5 M.Phil. and 33 Ph.D.s), for an average of about 5 degrees per year.

The Program admissions committee, consisting of 8 faculty members and 2 graduate students, reviews student applications for admission to the Program. The admissions process has two components: (1) a review of the applicant's application materials and (2) subsequent interviews during a "visit weekend." Criteria used to determine whether a student will be invited to interview at the "visit weekend" include: GRE scores, undergraduate education and grades (particularly in relevant biology and neuroscience classes), research experience, research interest statement, and particularly, letters of recommendation.

The admissions committee selects from 15 to 22 applicants for a "visit weekend" each year. The itinerary for the visit weekend begins on Thursday when candidates arrive and are housed at the University Park Hotel or the University Guest House. On Friday morning there is a breakfast reception followed by a Program overview and a meeting with the chair of the curriculum committee. One-on-one interviews with three or four admissions committee members are then conducted followed by lunch with Program students. In the afternoon, candidates meet with 3 or 4 more Program faculty in whom they have expressed a research interest. On Friday evening there is a large reception and poster session which is an opportunity for applicants to socialize with all members of the Program and see student research. On Saturday the applicants are accompanied on an outing by Program students to various Salt Lake City locations (including skiing or sightseeing). The students take the recruits to dinner on Saturday evening.
**Student Diversity:** In order to increase diversity, the Program has (1) participated in minority recruitment conferences, (2) sent out targeted mailings, (3) sent faculty on recruiting trips, and (4) participated in the Summer Research Opportunities Program (SROP).

However, in the past three years the Program has received only two applications from underrepresented minorities: one was a Hispanic and the other was Native American. One of these was interviewed and offered admission, but declined. The other student's application was considered too far below the Program's minimum standards to merit an interview. It therefore appears that there are no ethnic minority students currently enrolled in the Program. However the program does have three students with documented disabilities and two students from disadvantaged backgrounds, all of whom qualify as underrepresented under NIH guidelines.

**Program Effectiveness and Outcomes Assessment**

Mechanisms are in place to assess outcomes of the training program in both the short and long term. Student feedback is obtained for the courses and the program in general, and this student feedback is evaluated by the appropriate committees of the Program. This feedback is readily utilized to optimize the program. The longer-term assessment is in the form of alumni surveys and tracking the progress of alumni. The response rate of these alumni surveys is quite high, which is not surprising given how connected the students feel to the Program. The vast majority of Program graduates compete successfully for academic post-docs, faculty positions and positions in biotech/pharma, indicating the overall quality of the Program.

**Facilities and Resources**

The Program's operating budget for 2008-09 was $606,706, which originates from Central Funds and an NIH T32 Training Grant.

While overall academic administration is provided by Dr. Mary Lucero, the Program Director, day-to-day management of the Neuroscience Program is carried out by Ms. Tracy Marble, the Program Coordinator. The Program office is located in the Medical Research and Education Building (MREB). Ms. Marble manages all aspects of the Program, including website maintenance, newsletter preparation and distribution, student recruiting, retreat planning and organization, and tracking of student progress. She also manages all aspects of the T32 training program. Other than this office, there is no other space allocated to the Program. Teaching, research space and equipment for participating faculty members are housed within individual participating departments.
COMMENDATIONS

1. This is an excellent graduate training program in neuroscience, deserving of strong support so that it can not only maintain its current status, but expand. A thoughtfully designed training program has been developed and has now matured.

2. Administration of an interdepartmental program presents unique challenges that are being met well. The Program Director, Program Coordinator, and the Program Directorate Committee are all outstanding.

3. The program promotes collaborative efforts related to neuroscience research on campus, bringing together researchers from both the basic sciences and clinical disciplines.

4. The Program has established a close and cooperative interaction with the Brain Institute that has benefitted both parties.

5. The graduates of the Program readily obtain post-graduate training positions in top-tier labs. The track record for the program graduates ultimately moving into positions as university faculty or non-university research organizations is commendable.

RECOMMENDATIONS

1. Faculty and Student Diversity: The Program, in conjunction with the Office of the Associate Vice President for Diversity, should formulate and implement efforts to successfully recruit minority faculty members and students and achieve appropriate diversity. The use of annual reports to the Graduate Council should be considered as a way to encourage the Program to work effectively toward this objective. Particular attention should be paid to the relationship between the absence of minority participating faculty members and the corresponding lack of minority student applications. The Program also should consider including diversity as a positive factor in reviewing faculty participation applications, as well as in the student application review process and interviews. The Program's new Neuroscience Recruitment Committee should expressly adopt the objective of increasing diversity as one of its major responsibilities, and should monitor and report the Program's progress toward achieving that objective.

2. Teaching Requirement: The Program should proceed with its plan to require a formal teaching experience that must be fulfilled by the end of Spring Semester in the fourth year. The experience will include feedback in the form of evaluations and a dedicated faculty mentor. The Program plans to implement the new requirement in August 2010 for incoming students.
3. **Procedure for Replacement of Faculty in Administrative and Teaching Positions**: The Program should proceed with its plan to implement a 3-year term for faculty service on Program committees. Replacements for committee positions will be arranged by an online survey tool that will ask faculty to sign up for appointments a year in advance. Core course teaching commitments and the position of Director will have 5-year terms to provide more continuity. The Program Directorate Committee will review membership in the program annually to make sure members are participating and informed of their commitment to the Program.

4. **Formalized Training in Graduate Student Presentations**: The Program already provides students with numerous opportunities to make formal oral presentations. The Program should implement a formal evaluation and feedback system for each of such presentations to assure that students fully benefit from making such presentations.

5. **Interplay Between Program, Departmental, and University Administrative Structure**: The 2002 review of the Program recommended clarification of the budgetary, teaching, and student advising implications of having faculty participate in an interdepartmental program in order to assure that such faculty and their departments received proper "credit" for such work. The 2009 internal and external reports note that the same coordination concerns still exist. The Program should formulate and propose a "letter of understanding" among the Program, each participating department, and the University administration that clearly sets out and formalizes these relationships in all their dimensions, including budgetary, teaching, student advising, and all other aspects unique to the interdepartmental character of the Program.

6. **Relation Between Program and Brain Institute**: The Program should proceed with its plan to formalize the relations between the Program and the Brain Institute. Items currently being discussed are space use, potential serving on each other's directorate/advisory board, and continued collaboration on Brain Awareness Week and Intermountain Neuroscience programs.

Submitted by the Ad Hoc Review Committee of the Graduate Council:

John Martinez (Chair), Law
Ann Marie Breznay, Marriott Library
Mary Jane Taylor, Social Work
Memorandum of Understanding
Interdepartmental Program in Neuroscience
Graduate Council Review 2009-2010

This memorandum of understanding is a summary of decisions reached at a wrap-up meeting on May 19, 2010, concluding the Graduate Council Review of the Interdepartmental Program in Neuroscience. A. Lorris Betz, Senior Vice President for Health Sciences; David J. Bjorkman, Dean of the School of Medicine; Mary Lucero, Director of the Neuroscience Program; Charles A. Wight, Dean of the Graduate School; and Frederick Rhodewalt, Associate Dean of the Graduate School were present.

The discussion centered on but was not limited to the recommendations contained in the Graduate Council review completed on February 22, 2010. At the wrap-up meeting, the working group agreed to endorse the following actions:

Recommendation 1 - Faculty and Student Diversity: The Program, in conjunction with the Office of the Associate Vice President for Diversity, should formulate and implement efforts to successfully recruit minority faculty members and students and achieve appropriate diversity. The use of annual reports to the Graduate Council should be considered as a way to encourage the Program to work effectively toward this objective. Particular attention should be paid to the relationship between the absence of minority participating faculty members and the corresponding lack of minority student applications. The Program also should consider including diversity as a positive factor in reviewing faculty participation applications, as well as in the student application review process and interviews. The Program's new Neuroscience Recruitment Committee should expressly adopt the objective of increasing diversity as one of its major responsibilities, and should monitor and report the Program's progress toward achieving that objective.

The director acknowledges that increasing faculty diversity is a particular challenge for the Program because it does not participate directly in faculty recruitment, which is done by the departments that support the Interdepartmental Program in Neuroscience. The Program can suggest appropriate candidates to departments and will work through that channel to nominate women and underrepresented minority candidates when available. The Program’s new Neuroscience Recruitment Committee will consult with the Assistant Dean for Diversity in the Graduate School to formulate strategies for increasing applications from women and minorities. The Program will make annual reports to the Graduate School on the status of student diversity.
Recommendation 2 - Teaching Requirement: The Program should proceed with its plan to require a formal teaching experience that must be fulfilled by the end of Spring Semester in the fourth year. The experience will include feedback in the form of evaluations and a dedicated faculty mentor. The Program plans to implement the new requirement in August 2010 for incoming students.

The Program plans to add a formal teaching requirement to be fulfilled by the end of the fourth year. This will be implemented in the August 2010 Program Policy and Procedures. As indicated in the recommendation, the teaching requirement will include feedback and a dedicated faculty mentor.

Recommendation 3 - Procedure for Replacement of Faculty in Administrative and Teaching Positions: The Program should proceed with its plan to implement a 3-year term for faculty service on Program committees. Replacements for committee positions will be arranged by an online survey tool that will ask faculty to sign up for appointments a year in advance. Core course teaching commitments and the position of Director will have 5-year terms to provide more continuity. The Program Directorate Committee will review membership in the program annually to make sure members are participating and informed of their commitment to the Program.

The Program is currently implementing this recommendation and will report to the Graduate School by August 1, 2010 on its progress.

Recommendation 4 - Formalized Training in Graduate Student Presentations: The Program already provides students with numerous opportunities to make formal oral presentations. The Program should implement a formal evaluation and feedback system for each of such presentations to assure that students fully benefit from making such presentations.

Students have three opportunities to give presentations during the course of their training. They are instructed in how to give PowerPoint presentations and are given formal feedback on their presentations.

Recommendation 5 - Interplay Between Program, Departmental, and University Administrative Structure: The 2002 review of the Program recommended clarification of the budgetary, teaching, and student advising implications of having faculty participate in an interdepartmental program in order to assure that such faculty and their departments received proper "credit" for such work. The 2009 internal and external reports note that the same coordination concerns still exist. The Program should formulate and propose a "letter of understanding" among the Program, each participating department, and the University administration that clearly sets out and formalizes these relationships in all their dimensions, including budgetary, teaching, student advising, and all other aspects unique to the interdepartmental character of the Program.
The issue of coordinating with participating departments is a concern for interdisciplinary programs within the health sciences. The Senior Vice President for Health Sciences has instructed the Director of the Neuroscience Program to coordinate with the directors of the Molecular Biology Program and the Biological Chemistry Program to develop a document of understanding to be used by all combined and interdisciplinary programs. This document will specify the obligations and responsibilities of the program to students as well as indicate the relationship between programs and participating departments. Currently, the Program tracks student credit hours and returns SCH funds to departments. In turn, chairs commit departments to support students and chairs sign off on students mentored within their departments.

Recommendation 6 - Relation Between Program and Brain Institute: The Program should proceed with its plan to formalize the relations between the Program and the Brain Institute. Items currently being discussed are space use, potential serving on each other's directorate/advisory board, and continued collaboration on Brain Awareness Week and Intermountain Neuroscience programs.

A proposal is being developed to formalize relations between the Program in Neuroscience and the Brain Institute. Discussion items include space, board service, and collaborations. This process is facilitated by the fact that, at present, directors serve on each other’s executive committees. A memorandum of understanding between the Program and the Brain Institute is currently being finalized and will be transmitted to the Graduate School when completed.

This memorandum of understanding is to be followed by annual letters of progress from the director of the Neuroscience Program to the dean of the Graduate School. Letters will be submitted each year until all of the actions in the preceding paragraphs have been completed.

A. Lorris Betz
David J. Bjorkman
Mary Lucero
Charles A. Wight
Frederick Rhodewalt

Charles A. Wight
Dean, The Graduate School
July 16, 2010