

University of Idaho

**Letters and Science; Engineering; Biological Sciences; Psychology;
Electrical/Computer Engineering**

**M.S., Neuroscience and Ph.D., Neuroscience
Fall Semester, 2002**

Abstract

This proposal is for the implementation of a Neuroscience Program at the University of Idaho, consisting of two degrees, an M.S. in Neuroscience and a Ph.D. in Neuroscience. The proposed degree programs offer students the opportunity to combine studies in traditional disciplines and professional fields in order to gain an understanding of the complex nature of the brain and behavior. This program is distinct among neuroscience programs in that three areas will be emphasized: neurobiology, cognitive neuroscience, and computational neuroscience. The program will therefore foster an integrated and quantitative approach to neuroscience and behavior.

One major goal of neuroscience research is to understand how the nervous system forms and functions so that treatments and cures can be developed for neurological disorders such as Alzheimer's disease, depression, drug addiction and spinal cord injury. These disorders impact millions of Americans and cause disability and death and incur costs of over \$500 billion annually. We therefore must continue to make progress toward understanding the genetic and cellular basis of neurological disease. Neuroscience research also strives to understand cognitive processes and apply this understanding to the industrial and policy arenas. Toward these ends, we must train students in the area of neuroscience to prepare them for careers at academic institutions, industry, and in scientific communications. Such training must be interdisciplinary as neuroscience integrates across many traditional disciplines such as chemistry, biology, psychology, engineering and computer sciences, physics, and philosophy.

A recent report by the National Research Council (NRC), "Trends in the Early Careers of Life Scientists" (1998) identified the field of Neuroscience as the "top newly emerging field that held great promise for the future." This report acknowledges that advances in technology and a multidisciplinary approach have greatly enhanced neuroscience research currently and its prospects for the future.

Program participants will strive to solve interesting and important problems related to the nervous system and make this information available to others via publication and instruction. Since program participants utilize differing methodologies and have different research emphases, degree requirements will be flexible and reflect the individual participant's focus.

1. Nature of the request. This request is for the creation of a new interdisciplinary graduate program in Neuroscience. Degree requirements for this program will include biological, cognitive, and computational aspects of Neuroscience. The M.S. and Ph.D. degrees will be offered in Moscow. The Colleges of Letters and Science and Engineering will jointly administer the program. Fiscal management will be through the College of Letters and Science.

2. Quality. At present, there is no formal accreditation procedure for graduate programs in Neuroscience. However, we plan to join the Association of Neuroscience Departments and Programs (ANDP), an organization of more than 250 member departments and programs from academic institutions in North America. ANDP's goal is to advance education and research training in academic neuroscience programs by disseminating information about neuroscience education and providing a forum for discussion of issues in training and research at both the institutional and national levels. The ANDP is an independent, nonprofit, academically-oriented organization which shares many interests with the Society for Neuroscience and works closely with the Society to advance common goals. An external evaluation of a draft of the proposal has been provided by the following four individuals: Dr. Gwen A Jacobs, Department Head, Cell Biology/Neuroscience, Montana State University; Dr. William Roberts, Director, Institute of Neuroscience, University of Oregon; Dr. Katherine Fite, Director, Neuroscience and Behavior Program, University of Massachusetts; Dr. Bryan Slinker, Director, Programs in Neuroscience, Washington State University. These reviews are provided as Appendix I. Responses to these reviews are underlined within the text of this proposal.

3. Mission Statement: Program in Neuroscience, University of Idaho (UI). The purpose of this interdisciplinary, but independent program is to provide the organizational framework for the study of the nervous system by faculty, students, and fellows who are academically affiliated with different colleges and who each have a different focus within the field of neuroscience. Studies in neuroscience are broad and include the traditional fields of genetics, anatomy, chemistry, development, immunology, zoology, psychology, physiology, philosophy, computer science, and engineering. The program seeks to attract highly qualified graduate students to study for M.S. and Ph.D. degrees and who will enter careers in teaching, research, private practice, business, or industry following study at UI. The program also seeks highly qualified faculty to mentor these students and obtain funding necessary to engage in neuroscience research. The program, in conjunction with its own efforts, depends upon UI administration to provide funds for teaching assistants, research assistantships, travel awards, and enrichment lectures by scholars from outside the area. Undergraduate students are encouraged to participate in the program through enrollment in undergraduate neuroscience courses (including a Cognitive Science Cluster now under development), helping in faculty research projects, and interacting with visiting seminar speakers and scientists. The Neuroscience Program at the UI interacts extensively with the Neuroscience Program at Washington State University (WSU). This includes enrollment in WSU courses and having WSU faculty serve on Idaho graduate student committees and vice-versa. These programs, though separated by only eight miles, are independent and have their own identities and strengths. Program participants will strive to solve interesting and important problems related to the nervous system and make this information available to others via publication and instruction. Since program participants utilize differing methodologies and have different areas of focus, degree-requirements will be flexible and reflect the participant’s focus. Through team-teaching of basic neuroscience courses, students will have an opportunity to have an unusually broad exposure to the various subdisciplines that comprise the field of neuroscience.

4. Budget

I. Planned Student Enrollment		FY02	FY03	FY04		
A. New Enrollments		0	6	10		
B. Shifting Enrollments		5	7	8		
<u>Figures have been adjusted based on recommendations of external reviewers.</u>						
II. Expenditures	FTE	FY02	FTE	FY03	FTE	FY04
A. Personnel Costs						
1. Faculty	0	0	0	0	0	0
2. Administrators	0.25	18,000	0.25	18,500	0.25	19,000
3. Adjunct Faculty	0	0	0	0	0	0
4. RA/TA ¹	3	51,000	6	105,060	6	108,210
5. Research Personnel	0	0	0	0	0	0
6. Support Personnel	0.25	6,240	0.25	6,430	0.25	6,620
7. Fringes		7,800		8,540		8,800
Total FTE Personnel and Costs	3.5	83,040	6.5	138,530	6.5	142,630
B. Operating Expenditures						
1. Travel ²		3,000		6,200		6,400
2. Professional Services ³		5,000		5,200		5,400
3. Other Services		0		0		0
4. Communications		300		300		300
5. Utilities		0		0		0
6. Materials/Supplies		5,000		5,150		5,300
7. Rentals		0		0		0
8. Repairs and Maintenance		0		0		0
9. Materials/Goods for Manufacture		0		0		0
10. Miscellaneous ⁴		4,000		4,100		4,200
Total Operating Expenditures		17,300		20,950		21,850

C. Capital Outlay ⁵	0	16,000	0
D. Physical Facilities	0	0	0
E. Indirect Costs	0	0	0
Grand Total Expenditures	100,340	175,480	164,480

III. Revenues	FY02	FY03	FY04
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A. Source of Funds

1. Appropriated Funds – Reallocation ⁶	17,668	29,352	27,000
2. Appropriated Funds – New	0	0	0
3. Federal Funds – BRIN ⁷	82,672	146,128	137,480
4. Other Grants	0	0	0
5. Fees	0	0	0

5. Footnotes

¹ Three competitive research assistantships are to be awarded annually (one in neurobiology, one in cognitive neuroscience, one in computational neuroscience), and renewable for an additional year contingent upon academic performance. Assistantships include \$17,000/yr stipend (to be competitive with NIH predoctoral awards). Funds for fees will not be needed since the UI has committed to a fee waiver for graduate students supported through the BRIN mechanism. Funding for other students or beyond the period of support will be provided by Principal Investigators or existing teaching assistantships in participating departments (see p. 6).

² Travel in the first year of the program is for student recruitment/interviews. Travel in remaining years is for recruitment and for competitively-awarded travel fellowships for three students each year to attend a professional meeting and present their research.

³ Funds will be used to support a seminar series that includes professional development activities for participating faculty. A Grass Foundation Lecture will be co-sponsored with WSU Neuroscience on a regular basis.

⁴ Includes library acquisition funds. This figure assumes the success of ongoing attempts by BRIN participants to gain access to University of Washington library resources. If this access is not possible, up to \$50,000 in library acquisition funds will be needed.

⁵ Several computers are needed to develop/support the laboratory course. Since the BRIN award includes funds for development of on-campus computing facilities, these planned renovations will meet the needs of the Neuroscience Program.

⁶ We suggest that the program funding needs that cannot be covered by the BRIN award be reallocated from the indirect costs of grants and contracts awarded to program participants. On page 30 of the Review Draft of “Enhancing and Sustaining Scholarly Activity at the University of Idaho” funds are proposed for the support of collaborative multidisciplinary faculties. We agree with the Research Office that reallocation to support an interdisciplinary program would constitute a strategic investment by the UI toward the growth of research strengths and future grant and contract revenues.

⁷ Because of restrictions on the use of BRIN funds, we suggest they be used to support most of the personnel expenditures (listed under IIA). BRIN funds are already committed to enhancing the UI’s computing resources and so these funds can also support capital outlay expenditures.