

## **A Proposal for Summer Interdisciplinary Research Teams in Cognitive, Computational & Systems Neuroscience**

Cognitive, Computational & Systems Neuroscience (CCSN) is an exciting and fast-growing interdisciplinary field. There is substantial interest amongst undergraduate students for research experience studying the brain and cognition. We believe that the most effective way to catalyze learning in this area is to provide students with intensive research opportunities in an interdisciplinary lab environment to work on team projects. Here, we propose a mechanism for doing this that leverages the unique resources of Washington University and the Midstates Consortium members.

### **Synergy with Interdisciplinary Graduate Training**

The proposed program will take advantage of a unique environment at Washington University that has thus far been built around graduate training in CCSN. Washington University has recently established an interdisciplinary graduate training pathway in CCSN serving students in Biomedical Engineering, Neuroscience, and Psychology (<http://dbbs.wustl.edu/ccsn>). The pathway has been very successful and is currently funded by an NSF Integrative Graduate Education and Research Training (IGERT) grant and is supported by the McDonnell Center for Systems Neuroscience.

### **Proposed Program**

As an extension of our existing CCSN program, we are proposing to add intensive team-oriented research in CCSN for undergraduates from Midstates Consortium member campuses. We will admit as fellows an equal number of Washington University undergraduate students and undergraduates from other Midstates campuses, based on a competitive application process. Each Washington University undergraduate fellow will be matched with a “visiting” fellow and the pair will be placed in a laboratory affiliated with the CCSN graduate training program. Students will reside in Saint Louis for 8-10 weeks, during which they will participate in an intensive team research project. Research projects will be supervised by the lab director and will involve collaborations with graduate students and postdoctoral fellows.

To help expand the research experience beyond the summer, visiting students will return during the fall to present their research results at the University’s Undergraduate Research Symposium, and/or one of the fall Midstates Undergraduate Research Symposia.

Although the focus of this program is hands-on research experience, we will conduct several focused enrichment activities. These will include:

- The option of living in the Washington University research dorm with other students undertaking summer research.
- Brown bag presentations on graduate school opportunities and career paths in CCSN.
- Brown bag research presentations by CCSN graduate students.

### **Summer 2008 Program**

In the summer of 2008 a cohort of seven Washington University undergraduates completed a prototype program, including the research and enrichment components. Evaluations of this initial experience are currently underway, but anecdotal evidence is that the program was very well received and students are eager for these types of summer research experiences. We also think that based on this initial summer program, the idea of pairs of students working together will be a program improvement.

### **Institutional Resources**

The McDonnell Center for Systems Neuroscience has made a long-term commitment to provide administrative support for CCSN, including undergraduate programs. Washington University's Office of Undergraduate Research also has committed to supporting this program. These institutions' support includes managing admissions, planning events, tracking students, and implementing program assessments. Thus, virtually all dedicated funding for this program will go directly to student support.

### **Proposed 2-year Pilot Program**

We project that each student pair will require funding in the form of two fellowship stipends (\$3750 each) plus travel costs for the visiting student for the summer and return visit (\$1000), for a total of \$8500 per pair. We would like to fund an initial cohort of six pairs, for a total budget of \$51,000 per year. We will seek a substantial contribution from Washington University. We believe that a financial commitment from the Midstates Consortium subject to matching from Washington University would greatly help convince the University to provide support. We are requesting half of the student costs, \$25,500, from the Consortium and anticipate that Washington University will match the other half.

### **Future Funding and Plans**

We believe that with one or two years of pilot experience, this program will be very attractive to federal, foundation, and corporate funding sources. We plan to pursue opportunities including an NSF Research Experience for Undergraduates site grant.

Respectfully submitted,

Jeffrey M. Zacks, Chair, CCSN steering committee

Karen Nordell Pearson, Director, Midstates Consortium for Math & Science