

# **2013 Annual Spring Conference of Neuroscience Departments and Programs**

## ***Mentoring and Morale***

**March 8, 2013  
Washington, DC**

**Washington Plaza Hotel  
10 Thomas Circle  
Washington, DC 20005**

**Society for Neuroscience  
Committee on Neuroscience Departments and Programs  
1121 14<sup>th</sup> Street NW, Suite 1010, Washington, DC 20005  
(202) 962-4000 (Phone) - (202) 962-4941 (Fax) - [ndp@sfn.org](mailto:ndp@sfn.org)  
[SfN.org](http://SfN.org)**





**2013 Annual Spring Conference of  
Neuroscience Departments and Programs**

**Mentoring and Morale**

**March 8, Washington, DC**

**Agenda**

**Friday, March 8, 2013**

**7:30 – 8:30 am**      **Registration/Breakfast**  
Location: National Hall

**8:30 – 9:30**      **NIH Biomedical Research Workforce Working Group Report** (Keynote)  
• Naomi Rosenberg, PhD, Dean, Sackler School of Graduate Biomedical Sciences, Tufts Univ.

**9:30 – 10:00**      **Graduate Education Modernization** (Presentation)  
• Joan Frye, PhD, Senior Policy Analyst, White House Office of Science and Technology Policy

**10:00 – 10:30**      **Biomedical Research Workforce** (Discussion/Q&A)  
• Naomi Rosenberg, PhD  
• Joan Frye, PhD

**10:45 – 12:00**      **How to Develop Faculty as Strong Mentors** (Panel & Discussion)  
• Nancy Desmond, PhD, Associate Director for Research Training and Career Development, Division of Neuroscience & Basic Behavioral Science, National Institute of Mental Health  
• Julio Ramirez, PhD, Psychology & Neuroscience, Davidson College  
• Michael Zigmond, PhD, Neurology, University of Pittsburgh

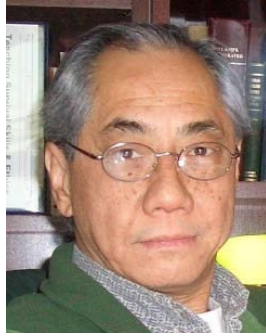
**12:00 – 1:45 pm**      **Matching, Recruiting, & Retaining Students: Best Practices** (Facilitated Discussion & Lunch)

**1:45 – 3:00**      **Ethical Issues in Neuroscience Training** (Panel & Discussion)  
• Stephanie Bird, PhD, *Science and Engineering Ethics*  
• Michael Zigmond, PhD, Neurology, University of Pittsburgh

**3:15 – 4:00**      **Spotlights & Updates** (Presentations)  
• 2012 Neuroscience Undergraduate Program-of-the-Year Award Winner  
• 2012 Neuroscience Graduate Program-of-the-Year Award Winner  
• Faculty for Undergraduate Neuroscience (FUN) Update

**4:00 – 5:30**      **Student Panel: Novel Ideas in Neuroscience Training** (Panel & Discussion)  
• Stephanie Courchesne-Schlink, PhD, National Institutes of Health  
• Heather Jameson, BS, George Washington University  
• Arielle Kempinsky, Johns Hopkins University  
• Samelia Okpodu, BS, National Eye Institute  
• Noel Turner, Johns Hopkins University

## 2013 Committee on Neuroscience Departments and Programs (CNDP)

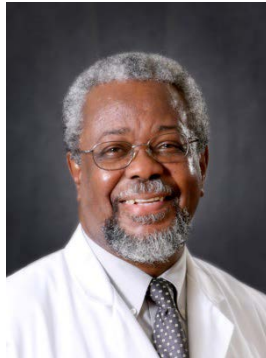


### **Hermes H. Yeh, PhD (Chair)**

**Professional Appointment:** Chair and Professor, Department of Physiology, Geisel School of Medicine at Dartmouth; Chair, DBD study section, CSR

**Research Interests:** Developmental neurobiology; synaptic plasticity in development and under acute and chronic conditions of chronic alcohol consumption

**CNDP Term of Service:** 2012-2015



### **Clivel G. Charlton, PhD**

**Professional Appointment:** Professor of Neuroscience and Pharmacology, Chairman, Department of Neuroscience and Pharmacology, Meharry Medical College

**Research Interests:** Parkinson's disease

**CNDP Term of Service:** 2011-2014



### **Barry W. Connors, PhD**

**Professional Appointment:** Professor and Chair, Department of Neuroscience, Brown University

**Research Interests:** Cellular physiology of the mammalian brain; mechanisms of epileptic seizures

**CNDP Term of Service:** 2010-2013



### **Janet M. Finlay, PhD**

**Professional Appointment:** Associate Professor, Department of Psychology; Director, Behavioral Neuroscience Program, Western Washington University

**Research Interests:** Neurobiology of schizophrenia; role of prefrontal cortex dopamine and glutamate in cognitive dysfunction

**CNDP Term of Service:** 2012-2015



### **Jean C. Hardwick, PhD**

**Professional Appointment:** Professor, Neuroscience Coordinator, Department of Biology, Ithaca College

**Research Interests:** Cellular neurophysiology; modulation of cardiac autonomic neurons

**CNDP Term of Service:** 2011-2014

## 2013 Committee on Neuroscience Departments and Programs (CNDP)



**Kristen A. Keefe, PhD**

**Professional Appointment:** Professor, Department of Pharmacology and Toxicology; Director, Interdepartmental Graduate Program in Neuroscience, University of Utah

**Research Interests:** Functional neuroanatomy of the basal ganglia, drug abuse and addiction, Parkinson's disease

**CNDP Term of Service:** 2011-2014



**Michael S. Levine, PhD**

**Professional Appointment:** Professor, Psychiatry and Biobehavioral Sciences; Chair, Interdepartmental PhD Program in Neuroscience; Assoc. Dir., Education of the Brain Research Institute; Assoc. Dir., Intellectual and Developmental Disabilities Research Center, The David Geffen School of Medicine, University of California at Los Angeles

**Research Interests:** Cellular physiological mechanisms in neurodegenerative and developmental disorders and diseases

**CNDP Term of Service:** 2010-2013



**Barbara Lom, PhD**

**Professional Appointment:** Associate Professor & Chair of Biology, Biology Department and Program in Neuroscience, Davidson College

**Research Interests:** Developmental neurobiology; dendritic arborization; visual system development; growth cone guidance; neuronal morphogenesis

**CNDP Term of Service:** 2011-2014



**Curnel Morgan, PhD**

**Professional Appointment:** Assistant Professor, Department of Nutrition & Food Science, Texas A&M Institute for Neuroscience, Texas A&M University

**Research Interests:** Interactions between bioenergetics and emotional states in rodent models

**CNDP Term of Service:** 2012-2015



**Jennifer Raymond, PhD**

**Professional Appointment:** Associate Professor of Neurobiology; Associate Dean, Office of Diversity and Leadership, Stanford University School of Medicine

**Research Interests:** Neural mechanisms of learning and memory, coding and plasticity in the cerebellum

**CNDP Term of Service:** 2012-2015

## 2013 Committee on Neuroscience Departments and Programs (CNDP)



**Cheryl L. Sisk, PhD**

**Professional Appointment:** Professor, Department of Psychology and Neuroscience, Michigan State University

**Research Interests:** Brain and behavioral development during puberty and adolescence, hormonal influences on the developing brain and behavior

**CNDP Term of Service:** 2011-2014

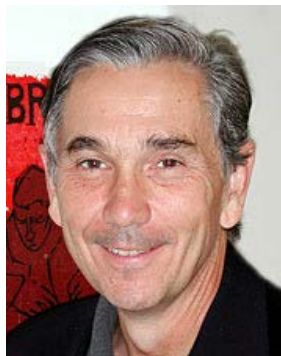


**Konrad E. Zinsmaier, PhD**

**Professional Appointment:** Chair, Graduate Interdisciplinary Program in Neuroscience, Professor of Neuroscience and Molecular & Cellular Biology, University of Arizona

**Research Interests:** Molecular mechanisms of synaptic function

**CNDP Term of Service:** 2010-2013



**Timothy Ebner, MD/PhD**

**Association of Medical School Neuroscience Department**

**Chairpersons Liaison**

**Professional Appointment:** Professor and Head, Department of Neuroscience, University of Minnesota

**Research Interests:** Function and dysfunction of the cerebellum

**CNDP Term of Service:** 2012-2015



**Julio J. Ramirez, PhD**

**Professional Development Committee Liaison**

**Professional Appointment:** R. Stuart Dickson Professor, Department of Psychology; Director, Neuroscience Program, Davidson College

**Research Interests:** Neurobiological basis of learning and memory, hippocampal plasticity, and recovery of function after brain damage

**CNDP Term of Service:** 2012-2013



**Eric P. Wiertelak, PhD**

**Faculty for Undergraduate Neuroscience Liaison**

**Professional Appointment:** DeWitt Wallace Professor of Psychology, Director of Neuroscience Studies, Macalester College

**Research Interests:** Basic mechanisms of pain modulation, investigations of the impact of traditional medicines in animal models of pain, and motor systems neuroscience, using dance (ballroom, primarily) as a model

**CNDP Term of Service:** 2012-2014



## **Society for Neuroscience Strategic Plan Higher Education and Training Strategy**

### **Strategic Issue:**

Members have expressed a strong desire for SfN to focus more on undergraduate and graduate teaching of neuroscience to better serve the needs of the large segment of SfN's membership engaged in training new generations of neuroscientists. Further, as the field of neuroscience continues to attract growing numbers of trainees, the profession can benefit from greater coordinated engagement of and support for the "stewards of the discipline."

### **Desired Outcomes:**

- Increased visibility for and communication with members on issues of neuroscience education and training as an element of SfN's mission and strategic plan.
- Needs and interests of neuroscience departments and programs and their trainees are effectively met.
- Increased resources (both internal and external) and programs to support training and education goals.
- Availability of a comprehensive source of neuroscience teaching resources for faculty through an online educational resources portal.
- Increased and coordinated participation of academic institutions, as a group, in SfN's advocacy efforts to inform policymakers about neuroscience research and workforce needs.
- Effective integration of a new class of institutional members (neuroscience depts. and programs) into SfN's membership structure.

### **Guiding Principles:**

- Serve as a focal point for neuroscience educators and their institutions, while creating added value for members through combined and expanded resources dedicated to neuroscience education and training.
- Dept. heads and training directors and their trainees, as a group, have interests and needs that go beyond the services and benefits SfN currently provides to its individual members.
- Seek and engage leaders of neuroscience departments and programs who have significant history of involvement in advancing education and research training in academic neuroscience.
- Leverage and build upon successful approaches and programs developed by the Association of Neuroscience Departments and Programs (ANDP) and the Faculty for Undergraduate Neuroscience (FUN), as well as international partners engaged in neuroscience education and training.
- Effectively engage Institutional Program members to influence policy and decisions by joining voices and visibility on issues pertaining to higher education and training in neuroscience.
- Maintain close collaboration and coordination and build relations with other organizations, including FUN, the Association of Medical School Neuroscience Department Chairpersons

(AMSND) and the Network of European Neuroscience Schools (NENS), that represent the interdisciplinary domains in which neuroscience programs and departments can reside.

- Ensure close coordination and synergy with SfN's professional development and diversity strategies.

#### **Action Plan:**

1. Develop a three-year plan for higher education and training, outlining resources needed and a plan to monitor and measure impact of outcomes, identifying those priority areas where SfN is uniquely positioned to add value. Include the following activities:
  - a. Conduct a needs assessment survey of neuroscience training programs to inform the planning process.
  - b. Provide online resources for neuroscience education and training, including a searchable directory of neuroscience training programs in North America and around the globe.
  - c. Conduct a biennial survey of neuroscience education and training that provides key information on current trends in trainees, faculty and programs.
  - d. Conduct an annual spring meeting for neuroscience departments and programs.
  - e. Organize events during the SfN annual meeting that serve SfN's Institutional Program members.
  - f. Recognize outstanding contributions to neuroscience education and training through an annual award to be presented at the SfN annual meeting.
2. Strengthen existing partnerships and identify potential new partners for collaborative activities in support of professional development needs/concerns of members engaged in teaching neuroscience.
  - a. Expand linkages and coordination with FUN and other relevant organizations, including those outside North America.
  - b. Seek to engage SfN chapters as active partners in implementing the higher education and training strategy.
3. Provide input and guidance for the development of a higher education teaching resource portal. (Tentative: pending external funding)



## **Committee on Neuroscience Departments and Programs Charter**

### **Mission**

To enhance the value SfN provides to its individual and institutional members (neuroscience departments and programs) through programs, activities, and initiatives that advance education and research training in academic neuroscience by providing opportunities for professional development, networking, outreach, and information sharing targeting educators and learners in higher education.

### **Responsibilities**

#### **Advise**

- Serve as a source of information to Council on higher education issues and members' needs related to the training and education of future neuroscientists.
- Recommend to Council initiatives designed to encourage and support the achievement of SfN's strategic goals in the domain of higher education and training.
- Recommend policies on Institutional Program (IP) membership initiatives, benefits, categories and fees.

#### **Monitor**

- Monitor trends in neuroscience education/training and potential funding and collaboration opportunities to further SfN goals in this area.

#### **Manage Activities**

- Oversee recruitment of new and lapsed Institutional Program Members.
- Review and approve all initial requests for new IP membership (this may be done by the full committee or its chair), and refer any denials to Council for further review.
- Plan and oversee annual spring meeting of neuroscience depts. and programs, including program of speakers and panels addressing various aspects of neuroscience education and research.
- Manage biennial survey of neuroscience education and training that provides key information on current trends in trainees, faculty and programs.
- Develop and manage approved workshops and other activities related to neuroscience education and training during and outside the SfN annual meeting.
- Promote the presence and importance of the community of higher education in neuroscience at the annual meeting and ongoing committee activities throughout the year.

#### **Coordinate and Communicate**

- Facilitate communications, outreach, and feedback to SfN from the training and higher education community.
- Collaborate and coordinate activities with the committees in the Higher Education & Professional Development Cluster. The C-NDP chair will serve as the committee's representative on the Cluster's steering committee.
- Encourage and facilitate involvement of neuroscience depts. and programs in SfN's advocacy efforts including annual Hill Day and other outreach activities that inform policymakers about neuroscience research and workforce needs and provide opportunities to promote issues related to support for neuroscience research and training.

- Maintain communication, coordination, and collaboration with the Faculty for Undergraduate Neuroscience (FUN) and other relevant partner organizations.
- Facilitate outreach to and information-sharing with SfN's growing international membership and neuroscience departments and programs outside North America.

**Composition**

The committee consists of a chair and standard committee members who serve a three-year term. The incoming chair serves as an ex officio member of the committee. Membership on the committee is limited to designated representatives of SfN Institutional Program Members. Committee members include a liaison from FUN and from SfN's Committee on Diversity in Neuroscience and Committee on Women in Neuroscience, each of whom must also be an Institutional Program Member representative. Committee members and the chair are recommended by the Committee on Committees, with input from the CNDP, and approved by the SfN Council.

**Schedule**

The committee will meet twice per year -- once during the SfN annual meeting and once in the spring at SfN headquarters, in conjunction with the annual meeting of neuroscience departments and programs. Additional committee work is conducted by e-mail and regularly scheduled conference calls throughout the calendar year to address issues that arise between meetings of the full committee.

## Institutional Program Membership

The Society for Neuroscience (SfN) Institutional Program (IP) membership is available to academic departments and programs that award an undergraduate major or advanced degree in neuroscience or a neuroscience-related discipline. A neuroscience program is defined as a formal program at any educational or research facility that includes pre- or postdoctoral trainees with a primary interest in scientific investigation of the nervous system. This may include a variety of administrative structures, including, but not limited to a subsection of a larger department, a separate department, or an interdepartmental program.

As a SfN IP member, programs and departments are included in the Directory of Neuroscience Training Programs on the SfN Web site. Each IP member may designate up to two official representatives for each membership year, and designate one as the primary contact person.

### **Member Benefits**

Institutional Program (IP) memberships are available for academic departments and programs that award undergraduate major or advanced degrees in neuroscience or neuroscience-related disciplines.

[Join or renew now](#) to gain access to an extensive pool of researchers and neuroscientists from all disciplines, backgrounds, research fields, and regions.

- A listing in the online searchable [Directory of Neuroscience Training Programs](#)
- Inclusion in a [biennial survey of neuroscience training programs](#)
- Reduced registration fee for the [Annual Spring Conference of Neuroscience Departments and Programs](#)
- Purchase one [NeuroJobs](#) posting and get the next half-price
- Access to the Neuroscience Departments and Programs booth at the SfN annual meeting to display program brochures and information
- Discounted registration for the Graduate School Fair, which takes place at the annual meeting
- Undergraduate students affiliated with an Institutional Program member are eligible for [travel awards](#) for the SfN annual meeting
- One free Institutional Program member email notice or one-time access to the Institutional Program mailing list (additional requests are \$100 each)
- One free email blast to SfN's student members
- Institutional Program member representatives can be nominated for service on the [Committee on Neuroscience Departments and Programs](#)
- Eligibility for [Neuroscience Program-of-the-Year Award](#)

### **2013 Institutional Program (IP) Membership Categories and Fees**

Graduate or Postdoctoral Program	\$295
Undergraduate Program	\$115

For more information, contact [membership@sfn.org](mailto:membership@sfn.org).

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## **Keynote Address: NIH Biomedical Research Workforce Working Group Report**

In 2011-12, the NIH appointed a Biomedical Research Workforce Working Group tasked with developing a model for a sustainable and diverse U.S. biomedical research workforce that can inform decisions about training the optimal number of people for the appropriate types of positions that will advance science and promote health. Dr. Rosenberg was a member of the working group and will present their recommendations and discuss the implications for research training programs.



**Naomi Rosenberg, PhD**

*Dean, Sackler School of Graduate Biomedical Sciences, Tufts University*

Naomi Rosenberg, PhD, received her A.B. in Biology from Boston University and her PhD in Microbiology from the University of Vermont. After postdoctoral training at M.I.T., she joined the faculty of Tufts University School of Medicine and was promoted to Professor in 1991. Since 2004, she has served as Dean of the Sackler School, the biomedical graduate school at Tufts University. Her research career focused on mechanisms of leukemia development. She is a Fellow of the American Academy of Microbiology. Other service includes membership on the Graduate Research and Training Steering Committee of the American Medical Association; she is

currently the chair-elect of this group.

In addition, she has served on numerous federal committees, including the Recombinant DNA Advisory Committee (RAC) of NIH and the Board of Scientific Counselors of the NCI. Most recently she served on the Biomedical Workforce Task Force, a committee reporting to NIH Director Collins regarding ways NIH can best support graduate and postdoctoral training.

Graduate education has been a very important part of her career. She has trained 29 PhD candidates, all but two of whom remain actively engaged in research. Past service to graduate programs at Tufts has included working as a Student Advocate for nearly ten years and service as a graduate program director for five years. As Dean of the Sackler School, she has focused on innovative approaches to train interdisciplinary scientists and better link basic, translational and clinical sciences. Her interest in enhancing access to careers in biomedical science is reflected by her support and development of a suite of pipeline programs at Sackler. Working to help graduate schools and their faculty respond to the changing landscape of that affects the biomedical workforce is one of her important goals.

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## Graduate Education Modernization



**Joan M. Frye, PhD**

*Senior Policy Analyst, White House Office of Science and Technology Policy*

Joan M. Frye, PhD, is a native of Philadelphia, PA, where she received her undergraduate degree in Chemistry at Temple University. With support from the NSF Minority Graduate Fellowship Program and the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, she pursued and received a PhD in Physical Chemistry with Takeshi Oka at the University of Chicago in 1985. A NATO Postdoctoral Fellowship allowed her to further her studies in sub-doppler infrared laser spectroscopy at the Technical University of Vienna. She subsequently held postdoctoral appointments at Brookhaven and Argonne National Laboratories. In 1989, she began a tenure-track appointment in the Chemistry Department at Howard University and received tenure there in 1994.

In 1995, Frye accepted a position at the National Science Foundation, where she served as Program Officer in the Experimental Physical Chemistry Program. Subsequently, she managed the Major Research Instrumentation Program, the Science and Technology: Integrative Partnerships Program, and the Partnerships for International Research and Education Program. At NSF, Frye also served as the Office of the Director's liaison to the Office of the Inspector General, as the Executive Secretary to the National Science Board Subcommittee on Polar Issues, and on a number of agency-wide working groups. Since July 2012, Frye has been on a detail as a senior policy analyst at the Office of Science and Technology Policy.

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## How to Develop Faculty as Strong Mentors

Good mentoring is fundamentally essential for the successful development and advancement of graduate students, postdoctoral fellows and faculty. Indeed, mentoring occurs at all these levels. When it comes to mentoring, we think more readily about mentoring at the level of graduate students and postdoctoral fellows. However, mentoring also occurs at the faculty level, as faculty mentors seek advice and guidance to optimize their effectiveness as mentors. The topic of mentoring faculty mentors, when it is discussed, tends to be discussed separately from that of mentoring graduate students. This session has convened a panel of neuroscientists who have devoted significant time and energy to promoting and integrating mentoring at all levels. After brief presentations, the panel will lead an open discussion on developing strong and effective faculty mentors to facilitate a productive and rewarding education and training experience for their graduate students.



**Julio Ramirez, PhD**

*R. Stuart Dickson Professor of Psychology, Davidson College;  
Director, Neuroscience Program, Davidson College*

Julio Ramirez, PhD, obtained his PhD in Psychology from Clark University in 1983. He did his postdoctoral work in neuroscience at the Massachusetts Institute of Technology from 1985 to 1986. Presently he is the R. Stuart Dickson Professor of Psychology at Davidson College, where he has been since 1986. Dr. Ramirez teaches undergraduate courses in neuroscience and general psychology. Since 1981, he has involved well over a hundred undergraduate students in his research programs, some of whom have coauthored presentations and papers with him in both national and international conferences and journals.

Dr. Ramirez's research interests include the recovery of function after central nervous system injury, with an emphasis on determining the functional significance of hippocampal neuroplasticity. His research has been supported by the National Science Foundation, the National Institute of Mental Health, the National Institute of Neurological Disorders and Stroke, and the North Carolina Board of Science and Technology.



**Nancy L Desmond, PhD**

*Associate Director for Research Training and Career Development,  
Division of Neuroscience and Basic Behavioral Science, National  
Institute of Mental Health*

Nancy Desmond, PhD, is currently an Associate Director in the Division of Neuroscience and Basic Behavioral Science (DNBBS) at the National Institute of Mental Health (NIMH), NIH. Before joining the NIH in 2003, Dr. Desmond was Associate Professor of

neurosurgery at the University of Virginia's School of Medicine and a member of the institution's Neuroscience Graduate Program. She obtained her PhD degree in physiological psychology from the University of California, Riverside, and then did postdoctoral training in neuroscience at the University of Virginia.

At the NIMH, Dr. Desmond directs the DNBBS Office of Research Training and Career Development, co-coordinates research training for the NIMH, and is Chief of the Neuroendocrinology and Neuroimmunology Program. She has contributed to multiple, NIH-wide efforts related to research training and career development. Current activities include co-chairing the policy subcommittee of the NIH Training Advisory Committee and serving on the working group for the NIH Common Fund program, Strengthening the Biomedical Research Workforce.



**Michael Zigmond, PhD**

*Professor of Neurology, University of Pittsburgh*

Michael Zigmond, PhD, received his B.S. in Chemical Engineering from the Carnegie Institute of Technology and his PhD in Biopsychology from the University of Chicago. Dr. Zigmond and his research group are interested in neuronal cell death, survival, and adaptation with particular attention paid to aging and to neurodegenerative diseases, such as Parkinson's disease. Much of the current work focuses on one of three questions: First, what underlies the loss of dopamine neurons in Parkinson's disease and how do trophic factors (e.g., GDNF and BDNF) and exercise act to decrease the vulnerability of these neurons? Second, what is the relation between dopamine neuron loss and the motor deficits that occur in normal aging? Third, how does prior exposure to a mild stressor reduce the vulnerability of dopamine neurons to a subsequent severe stress? Of particular interest with regard to these questions is the role of signaling cascades (e.g., Ras/ERK, PI3K/Akt) and antioxidant capacity in increasing neuronal resiliency. Ongoing studies involve cell lines, primary cultures of dopamine neurons, and rodent models, and make use of cell and molecular biology, genomic analyses, immunocytochemistry, microdialysis, and behavioral analysis.

Zigmond and his colleagues believe that their studies will provide insights into the causes and treatment of some of the neurodegeneration that occurs during aging and neurological disease. The studies are being extended through a number of collaborations to including those with Dr. Judy Cameron (WPIC) that permit the group to study monkey models.

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## Ethical Issues in Neuroscience Training

Panelists and attendees will discuss a range of ethical issues that neuroscience training programs address, or should be addressing. One focus of the session will be ethical issues related to relationships among trainees, mentors, training programs, educational institutions, and funding agencies. Likely questions and topics include: Who should be allowed to train graduate students? How can responsibilities to granting agencies and trainees be balanced? What are the ethics of mentoring? What are the responsibilities of mentors and training programs to educate prospective and matriculated students about the realities of the future job market? How should conflicts in commitment be identified and addressed? The second focus will be education in responsible conduct of research and related issues that are critical components of professional development. Likely topics include education tools, support for training in professionalism, and strategies for establishing collaboration among experts in ethics and neuroscience training faculty. Comments from the panelists will be followed by a question and discussion period.



**Stephanie J. Bird, PhD**

*Co-Editor in Chief, Science & Engineering Ethics*

Stephanie Bird, PhD, is a laboratory-trained neuroscientist whose professional interests are two-fold: the ethical, legal and social policy implications of scientific research, especially neuroscience; and education in the responsible conduct of research and the professional responsibilities of scientists and engineers. As an independent consultant she works with institutions of higher learning, professional societies, government agencies, and law firms in the United States and other countries. In addition, Dr. Bird is co-Editor-in-Chief of *Science and Engineering Ethics*, an international publication, now in its 19th year, that explores ethical issues of concern to scientists and engineers. The journal is widely abstracted and indexed and has been cited by the National Academies as a leading resource for scholarly articles on research integrity. Special issues have focused on various topics including "Mentoring and the Responsible Conduct of Research", "Communicating Science", "Responsible Data Management" and most recently, "Multidisciplinary Perspectives on Neuroethics." Formerly Dr. Bird was Special Assistant to the Provost and the Vice President for Research of the Massachusetts Institute of Technology (MIT) where she developed educational programs that address ethical issues in research, and also taught in her areas of expertise including both courses in the responsible conduct of research, and those that consider the ethical and social policy implications of science and technology.



**Michael Zigmond, PhD**

*Professor of Neurology, University of Pittsburgh*

Michael Zigmond, PhD, received his B.S. in Chemical Engineering from the Carnegie Institute of Technology and his PhD in Biopsychology from the University of Chicago. Dr. Zigmond and his research group are interested in neuronal cell death, survival, and adaptation with particular attention paid to aging and to neurodegenerative diseases, such as Parkinson's disease. Much of the current work focuses on one of three questions: First, what underlies the loss of dopamine neurons in Parkinson's disease and how do trophic factors (e.g., GDNF and BDNF) and exercise act to decrease the vulnerability of these neurons? Second, what is the relation between dopamine neuron loss and the motor deficits that occur in normal aging? Third, how does prior exposure to a mild stressor reduce the vulnerability of dopamine neurons to a subsequent severe stress? Of particular interest with regard to these questions is the role of signaling cascades (e.g., Ras/ERK, PI3K/Akt) and antioxidant capacity in increasing neuronal resiliency. Ongoing studies involve cell lines, primary cultures of dopamine neurons, and rodent models, and make use of cell and molecular biology, genomic analyses, immunocytochemistry, microdialysis, and behavioral analysis.

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## **Baldwin Wallace University**

### **2012 Undergraduate Neuroscience Program-of-the-Year Award Recipient**

The Baldwin Wallace University (BWU) Neuroscience Program began as a minor in 1993 and we instituted a Neuroscience Major in 2000. Neuroscience students graduate with 2 majors (Neuroscience and Biology, Chemistry, or Psychology). With over 70 students, Neuroscience is now the fastest growing major at the University. Our curriculum is research-intensive and all students are required to produce an empirically based senior thesis.

#### ***Case Report for Innovation***

It is widely accepted that teaching a skill to someone, enhances the teacher's skill as well. Yet, peer mentoring in higher education is often relegated to assisting student adjustment to College or academic tutoring - not usually to enhance research skills. As neuroscience undergoes growth worldwide, undergraduates are seeking laboratory experiences in which they become full partners with their peers and faculty in the design, conduct, and documentation of experiments that are publication worthy. We have *intentionally* developed a *3-step peer mentoring system* that encourages our students to collaborate and learn from, not only faculty, but each other.

*Peer Mentoring and the curriculum:* As an example, in our *Physiological Psychology* course students work in small teams to review the literature and design their own empirical studies. In 12 weeks they develop procedures, write a proposal for our IACUC or HSRB, conduct the studies and present the results at a campus-wide poster session. This class project requires students to be creative, write clearly, quickly develop new lab skills, and defend their work. These challenges are met through peer-to-peer teamwork but are also met through peer mentoring provided by more-senior students who have completed the course and serve as lab assistants. Students are also paired with senior neuroscience majors who have developed particular lab skills and may be called upon to act as supplementary mentors.

*Peer Mentoring and work in faculty labs:* Undergraduates, often ill-equipped with research skills, are likely to become involved in research labs where other students are also working with faculty. Students at BW frequently start laboratory internships as freshmen or sophomores and enter a faculty and peer mentoring system where they are trained in a structured, progressive manner. Students are given a handbook that lists all the techniques employed in a lab and then begin training. They first observe the particular task they wish to learn. Once they have watched this skill for the first time, they have a faculty member, the Lab Manager, or a peer mentor verify this by signing on the '*observation*' line of a checklist. Students next *perform* the skill under supervision, and finally are *tested* on the skill. Once this process is complete, students are then qualified to perform this particular task on their own. We have found that this method of initial observation, training and testing has been *instrumental in maintaining quality control* in the laboratory. Students begin with learning basic laboratory tasks and may eventually achieve the status of "Senior Laboratory Associate" (SLA) or Project Manager (PM). SLAs and PMs have the authority to train other less-experienced students. *They are the peers that less-experienced students turn to* for advice. As such, they are a critical part of the lab management team. The system we use here provides a structured, but encouraging, peer-mentoring community in which talented undergraduate neuroscientists can develop and mature.



*Peer Mentoring and Senior Theses:* Undergraduate students in our Neuroscience Clubs manage a “pairing program” where Neuroscience students working on their senior theses are paired with more-junior undergraduates. The students performing their senior thesis research benefit from having an extra set of hands and the mentored younger students learn new lab skills– techniques that will be used later as they perform their own thesis research.

### ***Demonstrated success of the innovation***

We have tracked the success of our peer mentoring programs via anonymous surveys of our current students and those in their post-undergraduate careers. When over 150 of our students working in laboratories that used our peer mentoring model were asked to rate their experience all “strongly agreed” with the statement that “supervision/training was appropriate and of high quality.” 100% of our peer mentors “agreed” or “strongly agreed” with statements indicating that their “peer mentorship was excellent”, “helped them gain confidence” and “allowed them to be more successful in their research”. Our student’s acceptance rate in graduate, medical, dental, and veterinary schools stands close to 100%.

### ***Replicability of the innovation***

We published our peer mentoring model in the *Journal of Undergraduate Neuroscience Education* (JUNE: Mickley et al., 2003; <http://www.funjournal.org/previous-issues/2003-vol-1-issue-2> ) and made two presentations at national *Council on Undergraduate Research* (CUR) conferences (2008; 2010). Formal feedback from attendees at these conferences indicates that the model is replicable in a variety of laboratory settings and sizes.

### ***Overall contribution to neuroscience education in the institution, community and the field***

Institution: Neuroscience peer mentors are recognized as enthusiastic ambassadors that are used by our undergraduate research office to go into classrooms to inform students about research opportunities on the BW campus. As a result, student recruitment and interest in science is booming and graduation rates are near 100% in these peer mentors.

Community: These students are active in community outreach events such as Brain Awareness Week activities. For example, during the last academic year, high school students were invited into our labs where they learned basic neuroscience techniques such as neurohistology from our peer mentors. Neuroscience student mentors taught elementary school children about autism and educated them about the basic mechanisms of sensation.

The field of neuroscience: For almost 20 years, our students have contributed directly to the field of neuroscience through their paper and poster presentations at the SfN and FUN meetings as well as at international venues (e.g., IBNS). Our student peer mentors work with faculty to produce papers that frequently appear in peer-reviewed journals and books.

In summary, BW’s novel and intentional peer mentoring system enhances our students’ success in graduate programs, careers, and life. We intend to present information about our peer mentoring system via Teaching/History of neuroscience posters and symposia at the 2013 SfN meeting.

## **Vanderbilt University**

### **2012 Graduate Neuroscience Program-of-the-Year Award Recipient**

The Neuroscience Graduate Program at Vanderbilt University is an interdisciplinary and transinstitutional program administered through the Vanderbilt Brain Institute (VBI). Founded in 1999, the Neuroscience Graduate Program has grown into one of the premier biomedical graduate programs at Vanderbilt and in the nation. The program is currently home to 81 students, with a core mission to prepare the next generation of leaders in the neurosciences. Trainees from our program typically go on to do postdoctoral fellowships in the best laboratories across the world, and many have now transitioned into faculty positions at premier academic institutions.

Although there are many facets to the training environment at Vanderbilt that we feel prepare our students well for their future role as leaders in our discipline, the one that we have chosen to highlight in this application is our strong emphasis on outreach and community service. More specifically, because of its tremendous innovation, we will focus on *Brain Matters*, a series of educational, interactive exhibits that resides at One Hundred Oaks in Nashville, a repurposed shopping mall that features mixed-use retail and clinical space and that houses many of Vanderbilt's community clinics.

*Brain Matters* was developed as a partnership between the Vanderbilt/NIMH Silvio O. Conte Center for Neuroscience Research and the Vanderbilt Brain Institute, and was funded through an ARRA supplement to the Conte Center grant. The focus of the supplement was to develop educational materials to expand the Conte Center's outreach mission, and has resulted in a set of state-of-the-art interactive exhibits that provide information on the brain, brain science, mental health and mental illness.

The emphasis on *Brain Matters* for this application is because much of the design and content of the exhibits came from the ideas and labors of past and present trainees of our Neuroscience Graduate Program. For example, although the conceptual development and progress were overseen by Dr. Randy Blakely, Director of the Conte Center, and Dr. Mark Wallace, Director of the VBI, the project was managed by Dr. Christopher Ciarleglio, a newly minted PhD from the graduate program who is currently a postdoctoral fellow at Brown.

Dr. Ciarleglio is the embodiment of the goals of the program. As a graduate student, Chris founded Vanderbilt Reviews Neuroscience (VRN), featuring reviews of doctoral candidates in the Neuroscience Graduate Program. With his neuroscience training, his creative and editorial experience in developing VRN, and his strong commitment to public outreach, Dr. Ciarleglio was the ideal candidate to manage the Conte project.

In his role with the project, Dr. Ciarleglio oversaw all aspects of the design and installation of a series of three exhibit spaces that greatly enhance the patient experience by providing a fun and informative educational resource they can peruse while waiting for appointments (each clinic visitor receives an electronic pager).

The three content spaces for *Brain Matters* are titled: Inside the Mind, Brain Matters and Neuroscience Discovery (see Appendix for additional detail). Once the themes for these three exhibits were arrived upon, Dr. Ciarleglio initiated content development working in conjunction with an advisory board and members of the Neuroscience Training Faculty.

However, most instrumental in the process were the efforts of a team of program students, led by a current graduate student in the program, Andrew Hardaway (see attached letter). Andrew and his team continue to develop content for the exhibits, with a focus on several areas that comprise the core content themes of the exhibits. These include: Brain Chemistry, Brain Structure and Function, Mental Health and Mental Illness, Neuroscience History and Case Studies and finally Neuroscience Discovery – which highlights the work of Vanderbilt neuroscientists.

In addition to their yeoman efforts in this content development, our graduate students have partnered with high school students from the School for Science and Math at Vanderbilt, in order to further streamline content, to promote the exhibit in the local school system, and to generate kid-friendly content to entertain and educate the younger visitors. Such a creative partnership further illustrates and reinforces our program's dedication to community education.

The unique synergy between the Neuroscience Graduate Program, the VBI and the Conte Center continues and expands now as the Conte Center begins its second funding cycle. In a creative and constructive way to continue to grow support for our neuroscience training efforts, two neuroscience students, Gwynne Davis and Justin Siemann, have been awarded support through the Conte, and will assist in outreach by serving as docents at tours of the exhibit, helping with content development and promoting education in local elementary and high schools. Additionally, the Conte Center will provide additional support for summer students involved in the Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (BP-ENDURE), and NIH-funded training initiative in which the VBI and Neuroscience Graduate Program is one of the host sites for these intensive summer research experience.

Although *Brain Matters* and the powerful partnership between the Neuroscience Graduate Program, the VBI and the Conte Center represent the cornerstone of this application, it is important to reinforce that outreach and education efforts have been an integral component of our training environment since it began.

The annual Brain Blast, part of Brain Awareness *Month* as it is celebrated at Vanderbilt, is a highlight of our outreach efforts. Brain Blast is coordinated by a committee of Neuroscience graduate students and manned by faculty, staff and student volunteers. In 2012 our program hosted a successful day of brain awareness fun, with record attendance of over 1000 participants. The new site for this event was One Hundred Oaks, as this represented an additional means to make our community aware of *Brain Matters*.

In summary, we believe that these unique and innovative ways in which our program focuses on education and outreach represent a powerful tool toward achieving our goal of training leaders who will always have an emphasis on furthering neuroscience education and understanding in the broader community. Additional detail in support of application can be found in the Appendix materials.

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## Update from the Faculty for Undergraduate Neuroscience (FUN)

FUN is an international organization that is focused on neuroscience education and research at the undergraduate level. FUN's members and supporters include businesses and organizations; private liberal arts colleges, state and research university departments and programs; and individual faculty and students, all sharing a common interest in undergraduate neuroscience.



### **Noah Sandstrom, PhD**

*President, FUN; Associate Professor, Department of Psychology; Chair, Neuroscience Program, Williams College*

Noah Sandstrom, PhD, is an Associate Professor of Psychology and Chair of the Neuroscience Program at Williams College in Williamstown, MA, where he has been on the faculty for 13 years. As an undergraduate, he attended Knox College followed by his graduate years at Duke University. Noah's research focuses on hormonal influences in neural and behavioral outcome following brain injury and he teaches a wide variety of courses in areas including psychology, neuroscience, and statistics.

## Novel Ideas in Neuroscience Training

Current neuroscience undergraduates, graduate students, and a recent graduate will reflect on the specific factors that they found most (and least) beneficial in their undergraduate and graduate educations. Specifically, the panelists will discuss their academic course work, their research experiences, and how they selected (or are about to select) their graduate programs. Panelists will also reflect on the positive and negative aspects of their training and take questions from the audience to provide student perspectives that help elucidate best practices in both undergraduate and graduate training in neuroscience.



**Stephanie L. Courchesne-Schlink, PhD**  
*National Institutes of Health*

Stephanie Courchesne-Schlink earned her BS in Neuroscience from Davidson College (2002) and her PhD in Neuroscience from Harvard University (2009). Her graduate research focused on neurotrophin signaling in the development of sensory and motor neurons, as well as pathological disease states that occur when neurotrophin signaling and downstream cellular responses are altered. After receiving her PhD, she was a Science and Technology Policy Fellow with the American Association for the Advancement of Science (AAAS) at the National Institutes of Health (NIH) from 2010-2011.

As an AAAS Fellow, she worked in the Office of Strategic Coordination, within the NIH Office of the Director. In 2011, she joined the Office of Strategic Coordination as a Health Science Policy Analyst. In this role, her responsibilities include strategic planning, science policy analysis, and communication/outreach activities for trans-NIH programs supported by the NIH Common Fund.



**Heather Jameson, BS**  
*George Washington University*

Heather Jameson graduated from The George Washington University in 2006 with a BS in chemistry. After graduation, she secured a position as a research assistant in the lab of Dr. David Mendelowitz where she immediately took an interest in the parasympathetic control of heart rate. After three years of training in the Mendelowitz lab, Heather was accepted into the Institute for Biomedical Sciences (IBS) at GWU. Currently, she is working towards a PhD in molecular medicine with a concentration in neuroscience. Her research focuses on experiments that will greatly advance our knowledge of blood pressure and heart rate regulation, and in particular the stress induced elevations in heart rate and blood pressure that occurs in the highly prevalent cardiovascular disease, obstructive sleep apnea. For the past 3 years, Heather has also served



as the president of the GWU IBS graduate student association where she plays an active role in the interview process for the IBS graduate program, helps students with the transition into graduate school, and serves as a member of the Curriculum Committee of the IBS. In this role, she advises faculty of student opinions in course requirements.



**Arielle Kempinsky**  
*Johns Hopkins University*

Arielle Kempinsky is an undergraduate Neuroscience major, concentrating in Systems Neuroscience, at Johns Hopkins University. She will graduate Phi Beta Kappa in May of this year. She has taken a wide range of neuroscience courses and taken her studies to Switzerland, India, China, and South Africa. Outside of academics, she is a member of the neuroscience honors society (Nu Rho Psi) and has volunteered as a research assistant at Johns Hopkins Hospital in two different labs. The first studied white matter tract integrity using cognitively normal and Alzheimer's older adults. The hope was to find a correlation between integrity and cognitive decline. Presently, she is in a drosophila lab, studying mechanisms of motor neuron degeneration, specifically in ALS. Arielle plans on attending medical-school, but is taking a gap year to pursue fellowship opportunities to work on the ground in Africa or Asia.



**Samelia Okpodu, BS**  
*National Eye Institute*

Samelia Okpodu obtained her BS degree in Optical Engineering from Norfolk State University in 2008. She is currently a doctoral candidate at Howard University in the department of Physiology and Biophysics. She joined the Neurobiology-Neurodegeneration and Repair Laboratory in the National Eye Institute as a part of an intramural training partnership program. Her dissertation research focuses on investigating the role of Planar Cell Polarity in the development of the visual system.



**Noel Turner**  
*Johns Hopkins University*

Noel Turner is currently a senior neuroscience major at Johns Hopkins University. He intends to apply to medical schools to pursue a career in neurology or neurosurgery. While at Johns Hopkins, he has been heavily involved in cognitive neuroscience research, primarily studying neuroplasticity in acquired and developmental dysgraphic patients. Turner is also the head teaching assistant for the Nervous System 1 and 2, which comprise the core classes of the neuroscience major.

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