

Chapter Grant Awards

Application

1.) Name of Chapter: _____

2.) Number of Current Chapter Members

Faculty Members: _____ Staff Members: _____ Postdoctoral Trainees: _____
 Graduate Students: _____ Undergraduate Students: _____

3.) Chapter Representative Contact Information:

Name: _____

Address: _____

Phone: _____ Fax: _____

E-mail: _____

4.) Chapter Treasurer Contact Information

Name: _____

Address: _____

Phone: _____ Fax: _____

E-mail: _____

5.) Checks Payable to: _____

6.) Mailing Address for Checks: _____

Please attach responses to the following questions in 10 point font or larger:

- 1.) A **brief summary** of the proposal (no more than 150-200 words).
- 2.) **Specific goals** of the proposal and how it relates to the SfN Strategic Plan, Brain Awareness Week activities, or otherwise promotes increased chapter membership and activity (please do not exceed 750 words to 1 page). Please be sure to include an approximate date of the proposed activity or event.
- 3.) **Budget:** explanation and justification. Travel may be allowed only for visits to promote chapter membership, if part of a formal program. *Please note: requests for travel funds must be accompanied by a compelling justification.*
- 4.) Please list any **chapter-sponsored events** held during the past three years (please include event dates and titles).
- 5.) Chapter **web-page address**, if applicable

Important note:

All Chapter awardees are required to submit a final report including detailed budget expenditures within 30 days after the funded event or activity. *Any unused funds must be returned to SfN.*

Return this form and your attachments to chapters@sfn.org.

Application for Chapter Grant Award (Spring 2009) Mississippi Chapter

Summary

The Mississippi Chapter will host Brain Awareness Week (BAW) activities in March 2009 for several student groups from local private and public high schools. Our goal is to introduce high school students in the Jackson Metropolitan Area to neuroscience in hopes that some will choose to pursue careers related to neuroscience. Given the demographics of the Jackson Public School system, our audience will consist of a predominantly African American student population from economically disadvantaged backgrounds. The Chapter last hosted BAW events on the University of Mississippi Medical Center campus in Jackson, Mississippi, in March 2007. Those events consisted of a series of four (4) educational modules designed to introduce the students to both clinical and basic science facets of neuroscience. BAW events planned for 2009 are based on those from 2007 but with the notable addition of a module on neuroscience in public policy in order to demonstrate the everyday impact of neuroscience to our daily lives. The Chapter requests an award of \$2000 to support our endeavors and will solicit matching funds from previous donors.

Specific goals

The Mississippi Chapter will host Brain Awareness Week (BAW) activities on 26 March 2009. Our primary goal is to introduce high school students in the Jackson Metropolitan Area to neuroscience in hopes that some will go on to choose career paths related to neuroscience. Our second goal is to introduce graduate and medical students pursuing careers in the neurosciences to the need for public outreach and advocacy. **Our 2009 BAW activities will consist of a series of five (5) educational modules** led by graduate and medical student members of the Mississippi Chapter with faculty support in which groups of high school students will be introduced, through brief seminars, demonstrations, hands-on exercises, or open discussion, to the methods, approaches, and concepts applied across the field of neuroscience. Our five (5) modules are described in detail below.

University of Mississippi Medical Center (UMMC) medical students in the Student Interest Group in Neurology (SIGN) will present a module on neuro-ophthamology. This module will introduce students to the concepts, tools, and methods used by neurologists to diagnose and treat vision problems stemming from neurological dysfunction. In addition, students will be taught and have the opportunity to examine each others' fundi using an ophthalmoscope. This module uses neuro-ophthamology as an exemplar highly amenable to audiovisual demonstration showing how physicians in the broader field of neurology approach the diagnosis and treatment of disorders of the nervous system.

Our second module will incorporate a live demonstration of a sleep study, featuring a sleeping volunteer whose brain waves (EEG), electrocardiogram (EKG) traces, eye movement, and masseter tension (via electromyography [EMG], reflecting muscle tone) will be recorded with the assistance of UMMC clinical sleep specialists and projected onto a screen for students to see in real time. Dr. James Shaffery and a graduate student will give a brief oral presentation on the neurobiology of sleep, including the four (4) stages of non-rapid eye movement sleep (NREMS) in comparison to REMS and similarities and differences in electrophysiological measures in REMS *versus* the wake state, and while doing so will also provide running commentary on the sleep architecture exhibited by the sleeping volunteer.

Our third module will introduce the students to functional and comparative neuroanatomy.

The students will be shown adult human brain and spinal cord specimens from those used in the UMMC medical neuroscience course. Dr. Ranjan Batra and graduate students Junlin Zhang and Audrey Smith of the UMMC Department of Anatomy will introduce the students to basic neuroanatomical terms, with an emphasis on localization of sensory, motor, and cognitive functions. Students will then have an opportunity to examine for themselves sheep brain specimens and to compare their size and shape with those of the human brain. They will be encouraged to look for structures in the sheep that were identified for them in the human.

A new module for this year will address multiple sclerosis (MS). MS is a relatively common disease that may directly affect the students or people close to them. It is also a good example of a complex neurological disease that is only partially understood. Students will be presented with basic information on the pathology and symptoms of MS by Dr. Laree Hiser with graduate students from the Mississippi Chapter. In addition, the high school students will learn what it is like to have the disease through simulations of visual and mobility disorders. These exercises will be designed to stimulate empathy, compassion, and curiosity about being able to help MS patients through clinical practice, basic science, or good citizenship.

Finally, a second new module we will introduce this year will be a presentation and discussion of public policy issues and their connection to neuroscience. The presenter, UMMC Neuroscience graduate student Justin A. Cobb along with Mississippi Chapter president, Dr. Ian A. Paul, will describe a number of policy questions and their relation to neuroscience, and then the students will engage in an open discussion of the issues presented. The goal of this module is to explore how neuroscience concepts impact the daily lives of all members of society, not just scientists or patients. Students will be shown how knowledge from neuroscience affects our sense of who we are and what neuroscience can tell us regarding the assumptions of various social institutions, particularly the legal system, education, and religion. Moreover, students will gain an appreciation for how knowledge of brain function influences our approach to ethics and morality.

Relevance to Strategic Plan: Our BAW activities in 2007 brought an audience of over one-hundred students from public and private high schools in the Jackson Metropolitan Area. Of particular relevance to promoting diversity in neuroscience (*Diversity Strategy*), the racial makeup of students in the Jackson Public School District (JPSD) was **over 97% African American** during the 2006-2007 school year. Moreover, the **vast majority of JPSD students come from an economically disadvantaged background**, with over 75% of the total student population qualified to receive free lunch and another 6% at reduced price. Overall, 83% of all school-age students in Jackson, Mississippi, were enrolled in the JPSD system during the 2006-2007 school year.¹

The students attending our BAW event will come away with enhanced understanding of neuroscience concepts and a greater appreciation of the impact of neuroscience on society (*Public Education Strategy*). Moreover, by reaching out to science educators in local high schools, we provide them a prime opportunity to forge collaborations with neuroscience faculty at UMMC that will enhance the education of their students.

¹ Jackson Public School District (2009). *About Jackson Public Schools*. Retrieved 11 February 2009 from <http://www.jackson.k12.ms.us/about/about.htm>

Budget

The Mississippi Chapter kindly requests an award of \$2000 to support our BAW activities in March 2009. Since the student groups will be provided transportation by their respective high schools, the Chapter will pay UMMC Biomedical Illustration Services will produce signage and banners, which we will post at key locations on the UMMC campus to help the groups locate our exhibits upon arriving to our campus. In addition, we will produce a roll-out poster for each exhibit. We estimate a total cost of \$900 to produce these signs and posters. In 2007, we distributed brain-themed door prizes to attendees and would like to do so again this year (est. \$500). We will need an estimated \$500 to pay for supplies and experienced sleep technicians for the sleep study module. Finally, on the day we present our BAW events to the student groups, we will provide a pizza lunch (est. \$100) to thank our presenters and others who helped plan and set up the activities in gratitude for their hard work, as we did in 2007.

We received financial support from Forest Laboratories and Trustmark National Bank in 2007 and will solicit matching funds from them this year, as well. In addition, in 2007 UMMC graciously donated space on campus and the use of audiovisual equipment and will do so again this year.

Chapter-sponsored events in past three (3) years

This will be our second observance of BAW since the inception of the Mississippi Chapter. Our first observance was on 21 March 2007. No BAW activities were hosted in 2008 due to scheduling difficulties, but we do plan to make BAW a yearly occurrence henceforth.

In addition to BAW, the Mississippi Chapter sponsors travel awards for graduate students, postdoctoral fellows, and faculty to attend neuroscience-related conferences. Four (4) Neuroscience Conference Attendance Team (NCAT) Awards totaling \$10,000 have been granted since the fall of 2007 (Justin A. Cobb, \$1500; Kedra Wallace, \$2500, Kristin Weaver, \$2500; Dr. Benjamin Hill, \$2500; Dr. Ian A. Paul, \$1000 [for the Society for Neuroscience annual meeting]).

In the last two years, the Chapter has co-sponsored with the UMMC Department of Psychiatry and Human Behavior (DPHB), the Center for Psychiatric Neuroscience, and Office of Research an Annual Neuroscience Research Day, including a seminar provided by nationally recognized researchers (Dr. Robert Speth, 1/10/2006; Dr. Robert Williams, U. Memphis, 4/11/2006; Dr. Edgar Garcia-Rill, U. Arkansas – Little Rock, 2/13/2008) and day-long poster sessions where faculty and students present current research results in the neuroscience field. The Chapter from time to time also hosts and sponsors a separate Seminar Series. Sponsored seminar speakers (Dr. Warren K. Bickel, U. Arkansas Med. Sci., 11/14/2007; Dr. Nikolai Filipov, Miss. St. U., 12/4/2007) are nationally recognized researchers from a wide range of neuroscience-related fields.

Chapter website

Our Chapter currently does not have a website. However, the UMMC Graduate Program in Neuroscience currently is committed to assisting the Mississippi Chapter in setting one up this year. We anticipate having a fully functional online presence by late 2009/early 2010.