About

• The Center for Excellence in Neuroscience (CEN) at UNE was founded in 2009 with three main areas of focus: research, scholarship and community outreach. It includes over 40 faculty members affiliated with neuroscience research or education.
• The Neuroscience Outreach Program was established in 2009 with the goal of bringing fun, interactive neuroscience lessons to schools to engage students in learning about neuroscience.
• Undergraduate and professional students present the lessons in classrooms with support from UNE faculty and staff.
• In the 2013-14 Academic year, we had over 55 active student volunteers. We have visited 15 schools from kindergarten to high school level.

Goals

1. Foster student interest in neuroscience and improve attitudes towards science.
2. Improve student competency in neuroscience and other science, technology, engineering and mathematics (STEM) subjects.
3. Promote student awareness of brain health and safety to help prevent brain injury.
4. Support local school systems and encourage development of STEM education.
5. Create strong community ties between UNE students and faculty and the surrounding communities.

Program Successes & Growth

• The program’s reach nearly tripled in size between 2010-11 and 2011-12, from less than 500 students to almost 1500. In 2012-2013, we visited over 1500 students with our modules and saw another 2000 with other outreach visits. In 2013-2014, we saw over 2100 students in classroom visits only.

• Approximate Students Reached Annually

Quality Assurance

• We hold training sessions to review each module before volunteer students are allowed to go into schools.
• With a UNE faculty member, volunteers attend school event as a presenter-in-training before they are certified to lead a module. This ensures that our volunteers bring accurate, high-quality, professional presentations to schools.

The “Grow-Up, Grow-Out” Model

• We want our program to “grow-up” and “grow-out” with the K-12 students:
  • “Grow-up” – vertical integration: developing modules that can be introduced in elementary school and built upon throughout middle and high school, following K-12 students as they progress in their education.
  • “Grow-out” – interdisciplinary modules: developing modules that become more advanced as well as incorporate other scientific fields to demonstrate the interdisciplinary nature of neuroscience.

Modules

• With assistance from faculty, undergraduate and professional student volunteers designed interactive neuroscience lessons, called modules, for the program. Our completed modules are available for download at http://www.une.edu/research/chen/k-12-outreach
• We use fun, hands-on activities to teach about neuroscience. By engaging students in hands on activities, we hope to teach important lessons about neuroscience and encourage students to pursue STEM fields in higher education and future careers.

Results

• An abbreviated version of the My Attitudes Towards Science (MATS) scale (Hillman et al., 2013) was used to assess students’ attitudes towards science and helmet safety.
• MATS scale was administered by the students’ teachers within one week prior to our visit and then by our volunteers immediately after our visit.
• Results of the MATS scale showed significant improvements in student feelings towards science as well as students who would like a career in science.
• The MATS scale also showed that there were no significant declines in students attitudes towards science following our visits.

Future Directions

• Assessment: implement quantitative and qualitative assessments to evaluate the efficacy of our program for K-12 students and volunteers.
• Training: create training videos for each module to make the training process easier and more consistent.
• Collaboration: work with other departments (mathematics, marine biology, chemistry, etc.) to create interdisciplinary modules.

BAW 2014: Brain Fair and Brain Blast

Brain Awareness Fair: A community event that promoted brain health and safety through activities such as helmet fittings and giveaways, cognition activities, and hands-on learning through the use of rat brain tissue models.

Brain Blast: A Pecha Kucha style event that incorporated a series of brief talks done by students, faculty and community members regarding topics such as chronic pain, head injuries, and epilepsy.

Collaborations

• Michael T. Goulet Traumatic Brain Injury and Epilepsy Foundation.
• Engine, an art studio in Biddeford, Maine.
• We are a member of the Dana Alliance lending library and our modules are featured on Brainfacts.org.