ARTICLE
Introduction to Volume 11, Issue 1 and

Proceedings of the Faculty for Undergraduate Neuroscience Workshops at Pomona College, Claremont, CA, July 28 to July 31, 2011

Bruce R. Johnson[1], Eric P. Wiertelak[2], Julio J. Ramirez[3], and Karen Parfitt[4]

[1]*Department of Neurobiology and Behavior, Cornell University, Ithaca, NY 14853;* [2]*Department of Psychology and Neuroscience Studies Program, Macalester College, St. Paul, MN 55105;* [3]*Department of Psychology and Neuroscience Program*, *Davidson College, Davidson, NC 28035*; [4]*Department of Neuroscience, Pomona College, Claremont, CA 91711*

This JUNE volume contains not only articles for publication in our Fall 2012 issue, but also contributions from presenters at the 6th Faculty for Undergraduate Neuroscience (FUN) workshops hosted by Karen Parfitt and colleagues at Pomona College in 2011. In 2011, two workshops were produced by the FUN Committee on Education on this 20th anniversary of the founding of FUN: a smaller **"**Preworkshop Intensive Laboratory Experience", July 28-29, and the main workshop entitled "Undergraduate Neuroscience Education: Resourcing the Curriculum, Improving Pedagogy and Programs, and Expanding our Disciplinary Horizons." A full listing of the presentations at the 2011 FUN Workshops can be found at www.aacu.org/pkal/events/2011FUNworkshop.cfm.

We lead off the workshop articles in this JUNE issue with a FUN historical perspective and "State of FUN" editorial by FUN Past-President Shelly Dickinson. The first series of full articles address the quality of undergraduate education, beginning with a broad perspective on core concepts and competencies in Biology, and how faculty, institutions, professional organizations and the National Science Foundation can better support quality education (Ledbetter); followed by a more specific discussion of undergraduate neuroscience competencies based on FUN member feedback (Kerchner, Hardwick and Thornton), advice for interacting with administrators to advance undergraduate neurobiology programs (Reiness) and an update on FUN's consultation service to help faculty achieve their educational goals (Wiertelak). The next three articles offer insight into creating racial and ethnic diversity in our students that can channel the science and technology creativity of all racial and ethnic groups (Whittaker and Montgomery, Weekes), and insight into cultivating our mentoring skills to enhance our students' learning environment and their career goals (Ramirez). Next we present a series of articles describing the creation of novel learning experiences: integrating lecture formats with creative active learning exercises (Lom); courses which flex the boundaries between academic disciplines for a broader, more integrated student perspective and enhanced student learning (Reynolds; Copp, Black and Gould); course specific, collaborative writing projects organized "in the cloud" (Olivo); neuroscience-based outreach programs linking students with local communities in activities with lasting influence on both students and community audiences (Mead and Kennedy; de Lacalle and Petruso); a program that broadens the student perspective on international culture, science and research opportunities abroad (Ruscio and Korey); and guidance for disseminating creative educational developments through the Journal of Undergraduate Neuroscience Education (Wiertelak and Dunbar**)**. The last set of articles describe the design of learning and research spaces (Weldon) and give examples of investigative, active learning, and its support, that can occur in these spaces. The first three address computer-based learning modules: a neuroinformatics exercise exploring the basis of genetic variation producing variable neuronal phenotypes (Grisham, Korey, Schottler, McCauley, and Beatty); using illusions to examine the mental construct of our world view (Wyttenbach); and neuronal simulations adapted to support instructor-designed, inquiry-based explorations of neuronal properties (Crisp [invited workshop leader unable to attend]). The last articles provide practical information for understanding fly genetic manipulation and incorporating a new line of fly exercises into neurobiology laboratory classes (Pulver and Berni), describe a specific laboratory exercise that combines the power of fly genetics with a neurophysiological analysis of light responses to better understand phototransduction and visual processing (Vilinsky and Johnson), an exercise examining autonomic physiology in humans through recording of the sympathetic skin response (Colgan), and finally, a guide to low cost, faculty constructed equipment for basic human neurophysiology (Hauptman, Du Bois, and Johnson).

The 2011 FUN Workshops were made possible by FUN support, and with funding from the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring Program (National Science Foundation Grant No. DUE-0930153) made to Julio J. Ramirez. We thank Karen Parfitt and her colleagues Jon King, Jonathan Matsui and their students for the onsite workshop organization, and Richard Lewis for his talk on the development and structure of neuroscience programs and departments (Lewis, 2006). We appreciate the generous support and meeting facilities provided by Pomona

College. We also thank Christina Shute from Project Kaleidoscope for helping organize meeting logistics and Macalester College for administrative support. We take this opportunity to appreciate FUN sponsors in 2011 and 2012 who support FUN activities. Special thanks to the Grass Foundation (www.grassfoundation.org) for our student travel award endowment, Sinauer Associates (www.sinauer.com), Wellesley College and ADInstruments (www.adinstruments.com) for their active investments in undergraduate neuroscience, and Michael Kinder of Kinder Scientific (www.kinderscientific.com) for his creative ideas to support undergraduate teaching. Other valued FUN support comes from: Lafayette and Campden Instruments (www.lafayetteinstrument.com), Leica Microsystems (www.leica-microsystems.com), MBF Biosciences (www.mbfbioscience.com), Med Associates (www.med-associates.com), Noldus Information Technology, Inc. (www.noldus.com), Thorlabs (www.thorlabs.com), and Fine Science Tools (www.finescience.com). Please consider our corporate benefactors as resources for your teaching and research needs. Thank all of our FUN sponsors when you visit their booths at the SfN meeting, or have another occasion to interact with their representatives. All of this is possible because of the enthusiasm of FUN members and their dedication to our organization as the voice of neuroscience education.

We look forward to the next FUN summer workshop, presently in the planning stage, to be held in the summer of 2014 at Ithaca College, Ithaca, NY.

REFERENCES

Johnson BR, Harrington ME, Wiertelak EP (2009) Introduction to papers from the FUN 2008 Macalester Workshops Proceedings of the 2008 Faculty for Undergraduate Neuroscience Workshops at Macalester College, St. Paul, MN, July 17 to July 20, 2008. J Undergrad Neurosci Ed 8:A1-A2.

Lewis RS (2006) Neuro now!: should neuroscience be a department or a program? J Undergrad Neurosci Ed 4:E11-13.

Address correspondence to: Bruce R. Johnson, Department of Neurobiology and Behavior, Cornell University, Ithaca, NY 14853. Email: brj1@cornell.edu