HAPS Eastern Regional Meeting
October 13, 2018
Dear Conference Participants:

Welcome to Howard Community College for the Eastern Regional Meeting of the Human Anatomy and Physiology Society. The 2018 meeting brings students and faculty together for professional development and networking. The conference will provide a forum for participants to share new information about science and effective pedagogy.

I am pleased that Howard Community College’s new Science, Engineering, and Technology (SET) Building is the setting for the conference. At 145,300 gross square feet, the $77 million Science, Engineering, and Technology (SET) Building features innovative instructional spaces and modern advances in laboratory design to prepare students for employment or transfer to four-year universities. With more than 1,000 total classroom seats, the SET Building will help meet growing demand for well-trained health professionals and scientists. I invite you to take time today to explore the SET Building, which recently received LEED Gold certification for its sustainable practices in design, construction, and operation.

This conference showcases the very best in teaching and learning. I wish you all the best for a successful and productive day.

Sincerely,

Jean Svacina, Ph.D.
Vice President for Academic Affairs
Howard Community College
# HAPS Eastern Regional Conference
## Schedule of Events
### October 13, 2018

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<th>Time</th>
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<td>7:00 AM – 7:30 AM</td>
<td>Exhibitor Setup</td>
<td>Science, Engineering and Technology (SET) First Floor Lobby</td>
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<td>7:30 AM – 8:45 AM</td>
<td>Registration</td>
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<tr>
<td>7:30 AM – 8:45 AM</td>
<td>Breakfast with Exhibitors</td>
<td>SET 109 and 111</td>
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<td>8:45 AM – 9:00 AM</td>
<td>Welcome: Conference Coordinator: Patti Turner</td>
<td>SET 101</td>
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<td>9:00 AM – 10:00 AM</td>
<td>Update Speaker I: Dr. Marcello Dias-Bustamante&lt;br&gt;<strong>Have You Heard About Infantile Spasms? Don’t Worry, You are Not Alone</strong></td>
<td>SET 101</td>
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<td>10:00 AM – 11:00 AM</td>
<td>Break with Exhibitors&lt;br&gt;Poster Session</td>
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<td>11:00 AM – 12:00 PM</td>
<td>Workshop Session 1</td>
<td>SET 107, 211, 463 and HSB 263</td>
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<td>12:00 PM – 1:00 PM</td>
<td>Lunch</td>
<td>SET 109 and 111</td>
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<td>1:00 PM – 2:00 PM</td>
<td>Update Speaker II: Dr. Alexander Poulpoulos&lt;br&gt;<strong>Finding the Wiring Defects Behind Mental Illness: Brain Clearing, in Vivo CRISPR Genome Engineering, and Neural Mosaics</strong></td>
<td>SET 101</td>
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<td>2:00 PM – 3:00 PM</td>
<td>Break with Exhibitors&lt;br&gt;Poster Session</td>
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<td>3:00 PM – 4:00 PM</td>
<td>Workshop Session 2</td>
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<td>4:00 PM – 4:15 PM</td>
<td>Closing &amp; Door Prizes</td>
<td>SET 101</td>
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HAPS Conference attendees can gain access to WiFi at HCC by using the Guest Network. No password is necessary.
HAPS Eastern Regional Meeting 2018
Exhibitors

HAPS would like to recognize and thank all of our conference exhibitors. Their generous support makes this conference possible.

Exhibitors
ADInstruments
Gale, A Cengage Company
MaLa Scientific
Morton Publishing
SynDaver Labs
Visible Body

Don’t forget to register for HAPS 2019!

The HAPS 2019 Annual Conference will take place in Portland, Oregon on May 22nd through May 26th.

The last day to register at the Early Bird rate is February 15th. Register online today!
Abstract: Infantile spasms, also known as West syndrome, is one of the Early Onset Epileptic encephalopathies. Patients are usually diagnosed before six months of age and the disease is described as one of the most catastrophic epileptic syndromes, given the lack of effective therapies, the difficulty to find the cause associated and the high prevalence of developmental delays. Infantile spasms are characterized by a disorganized and chaotic brain activity called hypsarrythmia. Many potential targets have been associated with the disease including ionic channels and synaptic receptors which are in charge of keeping the balance between synaptic excitation and inhibition. Among them, GABA receptors play a major role in the control of seizures since they bind to GABA, the main inhibitory neurotransmitter in the brain. Having identified a mutation within this receptor linked to an early onset epileptic disorder, we are trying to frame the structural and functional consequences of this mutation locus in the light of newly reported GABAA receptor structures.

Bio: Dr. Diaz-Bustamante has a Bachelor’s degree in Biochemistry from the Pontificia Universidad Catolica de Valparaiso and a PhD in Neuroscience from the Universidad de Valparaiso. He came to the US through a Graduate Partnership Program to work in his PhD thesis at the National Institute of Mental Health at NIH in Bethesda where he studied the role of microRNAs in neuronal maturation. He joined the lab of Ronald McKay as a postdoctoral fellow at the Lieber Institute for Brain Development, where he specialized in the early stages of neuronal communication, from stem cells differentiation to synaptic development. He did a second postdoc in the lab of Frank Bosmans in Johns Hopkins University to study different pathologies involving ionic channels affecting neuronal communication, such as epilepsy, pain and itch. At present he is a research associate in the Department of Molecular and Comparative Pathobiology where he is establishing his own line of research in early onset epileptic encephalopathies.
Abstract: Miswiring of brain circuits is thought to underlie a variety of mental disorders, including intellectual disability, autism, and schizophrenia. The complexity of brain circuitry has obscured our understanding of the specific faulty circuits that lead to disease. However, an increasing stream of information is being acquired on the genetic underpinnings of these disorders. With the emergence of large-scale DNA sequencing of patient genomes, a growing number of mutations are being identified that correlate with disease. In order to bridge the gap between genetics and the actual brain circuit defects that cause mental illness, we have developed a molecular approach to systematically determine the circuit basis behind neurodevelopmental and psychiatric disease.

Our workflow uses in vivo CRISPR genome engineering to introduce disease-relevant mutations directly into the developing brains of mouse embryos. Combining synthetic biology with tissue clearing for whole-brain microscopy, we manipulate neurons in mosaic patterns which directly illustrate miswiring that takes place specifically in mutant circuits. We are currently applying this workflow to identify circuit defects causing intellectual disability and schizophrenia through mutations that we identified in genetically isolated populations from the tribal communities of Pakistan, and from the Old Order Mennonite community of Pennsylvania. Identification of the circuits and faulty connections behind these conditions will further our understanding of brain circuit development, of how mental illness arises from faulty circuit development, and of how to develop effective therapies.

Bio: Alex is an Assistant Professor in the Department of Pharmacology at the University of Maryland School of Medicine. His research team uses in vivo genome engineering and synthetic biology in mice to study the formation of brain circuits, and how circuitry is miswired in conditions afflicting mental health. Alex came to Baltimore via Boston, where he was a postdoctoral researcher studying brain development in the lab of Jeff Macklis at Harvard University. Originally from Athens, Greece, Alex majored in biology at the University of Athens. He went on to get a PhD in Neuroscience at the University of Goettingen in Germany, where he studied synaptogenesis, the formation of connections between neurons in the brain, in the lab of Nils Brose at the Max Planck Institute for Experimental Medicine.
Poster Presentations

Posters can be viewed during the Poster sessions
(10:00 – 11:00 am and 2:00 – 3:00 pm) in the SET Lobby – First Floor

Classroom Activity Using Signal and Target Organ Response Rules to Predict Sexual Differentiation Variations
Cynthia Gill, Hampshire College, cgill@hampshire.edu
Reproductive organs respond to specific signals to establish developmental trajectory and different organs within an individual may differentiate along distinct male-like and female-like trajectories. Students can learn the signal-to-organ response rules (such as, testis-determining factor (TDF) signals the undifferentiated gonads to become testes). Then students can test their understanding of the signaling mechanisms by making predictions about outcomes from combinations of signals. For example, what is the outcome in an individual with TDF and no functioning androgen receptor? An in-class activity is provided, with suggestions for an informative and respectful classroom discussion around a topic of intense student interest.

Using LMS Technology Tools to Foster Critical Thinking
Geraldine Wright, Tidewater Community College, gwright@tcc.edu
The ability to think clearly and rationally is imperative for health care professionals. Our Anatomy and Physiology courses are content rich, so it is hard to find time for scholarly discussions among students. Our Learning Managements Systems, LMS, provide tools that can be used outside class to foster critical thinking and collaboration. Each semester we assign a group project in Anatomy and Physiology II, that requires students to use higher level skills. The project can also be used to have students peer teach chapters or to complete make up work due to loss of instructional time.
Workshop Presentations
Session 1: 11:00 AM – 12:00 PM
Session 2: 3:00 – 4:00 PM

Session 101: HSB 263
See-Through SonoAnatomy
Catheeya Ismail, The George Washington University, 34cath@gmail.com, Ijeoma Ozed-Williams, Baltimore City Community College, ijeoma.ozedwilliams@gmail.com
How would you like to have your students see the insides of living, breathing human beings? To see muscle fascicles change with movement. To watch blood flow in a carotid artery. To observe peristalsis. To examine metacarpals. To gain mastery through hands-on real-time see-through study of live subjects. See-through yourself. Join us for real-time hands-on scanning and see if See-Through SonoAnatomy is something you can adopt in your A&P courses. Workshop limited to eight (8) active participants. Non-participating observers are welcome.

Session 102: SET 107
Anatomy of a Multiple Choice Question
Brian Hill, Via College of Osteopathic Medicine, bhill@vcom.vt.edu
As instructors, we test our students regularly, often utilizing multiple choice exams. Many of us merely imitate our former instructors in terms of constructing multiple choice questions as we have had no formal training in this area. This session will focus on writing better exam questions by presenting the best practices for construction of multiple choice questions. Particular emphasis will be placed on the item writing guidelines used by standardized exams such as the Medical College Admissions Test (MCAT), Veterinarian College Admissions Exam (VCAT), Graduate Record Exam (GRE), etc.

Session 103: SET 211
Teaching Tips - Nervous System: Neurobiology Learning-Outcome-Linked Activities - LOL!
John Koch, John Tyler Community College, jckoch45@verizon.net, Javanika Mody, Anne Arundel Community College, jmody@aacc.edu, Ewa Gorski, Community College of Baltimore County, egorski@ccbcmd.edu, Terry Thompson, Wor-Wic Community College, tthompson@worwic.edu
The Nervous System is an important A&P unit and is one of the HAPS Learning Outcome modules posted under Teaching Resources on the HAPS website. Nervous system concepts are challenging for students to comprehend. In this workshop, a team of HAPSters will share our most effective and engaging teaching activities to enhance student understanding of neuron and nerve anatomy and physiology, along with an activity exploring the brain's somatosensory homunculus. All activities are linked to specific HAPS Learning Outcomes. Join us to gain some super teaching tips and to have some fun - LOL!
Session 104: SET 463
Stations Activities in A&P I lab
Heather Dungan Lemko, Howard Community College, hlemko@howardcc.edu, Erin Alberts, Howard Community College, ealberts@howardcc.edu
We are developing a team-based lab experience where students complete a series of guided hands-on activities. In this workshop, we will present an overview of the lab organization and have attendees work through the group activities as students. Then, we will invite feedback and discussion of this method.

Session 201: SET 211
Visible Body Courseware - Demonstrating Dynamic 3D Solutions for Anatomy and Physiology
Pam Auckland, Visible Body, pam.auckland@visiblebody.com
Sponsored by Visible Body
A demonstration of our robust web-based human anatomy learning platform that helps instructors better connect with their students.

Session 202: SET 107
Physiology of a Multiple Choice Question
Brian Hill, Via College of Osteopathic Medicine, bhill@vcom.vt.edu
Even though they require significant time to construct, multiple choice questions are graded very easily either electronically or with an automated machine such as ScanTron. Today, even the most basic of electronic or automated grading machine produces a pile of statistics to analyze each question. This session will teach participants how to analyze these statistics to confirm the validity of each test item and how to use these statistics to tweak a question or instructional materials to improve its performance on future exams.

Session 203: SET 463
Fun Animal Bones Lab Activity
John Koch, John Tyler Community College, jckoch45@verizon.net
Come enjoy some hands-on anatomical sleuthing and gain a little insight too. Using only your knowledge of human anatomy and the similarities between human and animal skeletons, see how many animal bones and their features you can name. Attendees will rotate at their own pace through lab practical stations composed of a variety of actual bones from turkeys, pigs, cows, elk, bison and humans. Work in groups if you like. Hints will gladly be given when requested. Upon completion answer keys will be available and questions/comments welcomed.
Thank you for coming and participating in our 2018 HAPS Eastern Region Meeting. The heart of HAPS has always been the people of HAPS. Thank you for joining together to engage in our ongoing conversation about how to strengthen our students’ understanding of Human Anatomy and Physiology.

A special thank you goes Brittney Roberts, HAPS Assistant Business Manager, for being so helpful in making the logistical arrangements for this meeting so easy on us. And of course, we once again thank our loyal exhibitors who help us keep our registration fees as low as possible.

Sincerely,
The Eastern Regional Meeting Planning committee:

    Luda Bard, Howard Community College
    Bhuvana Chandran, Howard Community College
    Sandra Clabough, Howard Community College
    Ewa Gorski, Community College of Baltimore County
    Will Grete, Howard Community College
    Ellen Lathrop-Davis, Community College of Baltimore County
    Heather Lemko, Howard Community College
    Javni Mody, Anne Arundel Community College
    Patti Turner, Howard Community College