



Leadership Initiatives

Youth Development Programs

Advanced Medical Neuroscience Summit June 23rd-June 29th

Sunday, Day 1	June 23, 2019
12:00 PM-4:30 PM	Conference Registration Description: Students will check into the conference, receive their manuals, room assignments, room keys, and confirm all travel arrangements, contact info, and paperwork. Students will also be able to attend campus tours during this time.
4:45-5:45 PM	Welcome to the Program Description: Conference overview: Learn the policies, procedures, and experiential learning and problem-solving paradigms.
6:00-7:00 PM	Dinner
7:15-9:15 PM	Keynote Address Why Do We Mind What Goes On In Our Minds? Prof. James Giordano Description: Let's get started by thinking about how we think about thinking! Students will get a glimpse of the complexities of brain sciences and their applications from the cellular to the social scales.
9:30-10:00 PM	Group Debriefing and Discussion Description: Arrange a system for organization throughout the week, play get-to-know-you games, and review schedule for any pending questions. Students can

	also discuss their mutual passion for neuroscience!
10:15-11:00 PM	Student Down Time Description: Students will get situated in their dorm rooms and begin making lasting friends!
11:15 PM	Bed Time Description: Students need to rest up for the rest of a busy week.
Monday, Day 2	June 24, 2019
7:00-8:00 AM	Breakfast
8:15-10:15 AM	Brave New Brain Sciences – And Need for Neuroethics Prof. James Giordano Description: Students will learn how new developments in neuroscience and its technologies are forging ever increasing capabilities to assess, access and affect the living brain and its functions of thought, emotion and behavior; and how such developments may spawn neuroethical, legal and social issues.
10:30 AM - 11:45 AM	Brain Bank: Anatomical Demonstration Description: Students will watch and participate in an anatomical demonstration of the human brain, and experience what it is like to literally hold the organ of thoughts, feelings and memories in their hands.
12:00-1:00 PM	Lunch
1:15-2:15 PM	Neuroimaging, EEG Lecture Prof. John VanMeter Description: Students will learn about methods, capabilities and limitations of neuroimaging from Prof. VanMeter, and how brain imaging techniques and tools can be used to assess neurological structures and functions involved in cognition, emotions and actions.
2:15- 5:00 PM	Neuroimaging and EEG Demo Dr. John Vanmeter Description: Students will have the first hand opportunity to view a demonstration of functional MRI (fMRI), and EEG, to experience how these technologies can scan the

	brain and depict its functions.
5:15-6:15 PM	Dinner
6:30-7:00 PM	Discussion and Daily Debrief: Neuroscience Fact vs Neuroscience Fiction Prof. James Giordano Description: Students will discuss what brain science can “really” do, compare it to fictional representations, and address the role, value and responsibilities of “neuroscience fiction”.
7:30-10:00 PM *Theater	Movie Night! - (popcorn included) Mind Scanners Description: Watch a movie that will continue to provoke thought about thought! This movie portrays how the future Neuro-innovations can change every “self” and consequently, human behavior as a whole.
10:00-11:00 PM	Student Down Time
11:15 PM	Bed Check
Tuesday, Day 3	June 25, 2019
7:15-8:00 AM	Breakfast
8:15-9:15 AM	Neuromodulation: Stimulating the Brain to Affect the Mind Prof. James Giordano Description: Students will learn how new tools of neuromodulation can enable brain stimulation directly through the skull. In addition, students will learn how such new technologies are being used in medicine, lifestyle and performance optimization. Students will come to understand how these innovations are being offered directly to consumers, and even being built by do-it-yourself scientists.
9:30 AM - 10:30 AM	The Creative Brain Adam Green Brain stimulation FNIR Description: Students will further grasp the brain’s cognitive capabilities by learning about its more abstract abilities, like creativity. Students will have the think

	outside the lines about thinking outside of the lines.
11:00 AM - 12:30 AM	<p>HALO Demonstration</p> <p>Description: Students will see how electrical stimulation of the brain has become very accessible by using the HALO device that stimulates the nervous system to improve day-to-day functions.</p>
12:45-1:15 PM	Lunch
1:30-3:00 PM	<p>“Going Deep” ...</p> <p>Prof. James Giordano</p> <p>While some forms of neuromodulation can be delivered through the skull, the most advanced developments involve neurosurgically implanting electrodes and sensors deep in the brain to affect neurological functions and lessen the ravages of neurological and psychiatric conditions. Such treatments offer new hope for often incurable disorders. What today may be a complex neurosurgical procedure, might be more readily and easily available in the near future.</p>
3:15-4:00 PM	<p>Neurosurgery Viewing - Deep Brain Stimulation</p> <p>Description: Students will watch a neurosurgery in which a patient is implanted with a deep brain stimulation (DBS) device. Students will observe the complexity of the procedure and see how the patient’s signs and symptoms change once the DBS device is activated.</p>
4:00- 5:15 PM	<p>Movement Disorder</p> <p>Dr. Fernando Pagan</p> <p>Description: Students will interact with the Director of the Movement Disorder Clinic, meeting and engaging some of his patients. Students will have an opportunity to understand how Parkinson’s disease affects a person's life and how neurologists, neurosurgeons and therapists make accurate diagnoses, plan and execute state-of-the art treatments.</p>
5:15-6:00 PM	Dinner
6:15-6:45 PM	<p>Discussion and Daily Debrief: Capabilities, Desires and Limits</p> <p>Prof. James Giordano</p> <p>Description: Students will discuss how new</p>

	developments in the brain sciences are viewed by the public, and how public perceptions of the capabilities of these emerging tools and techniques create an ever expanding market for their use and availability.
7:00-10:00 PM	Movie Night 2.0 - Limitless Description: Students will see a movie that dives deeper into the future of altering the brain--what can go right, or what could go wrong.
10:00-11:00 PM	Student Down Time
11:15 PM	Bed Check
Wed, Day 4	June 26, 2019
7:15-8:15 AM	Breakfast
8:30-10:00 AM	Language: A Human Evolution Necessity Prof. Michael Ullman Description: Students will learn how integral language is to the evolution and survival of humans – and other animals as well. How does the human brain develop and express the capacities for language, and does this make humans “special”?
10:15 AM - 11:45 AM	The Brain and Language Lab The Brain and Language Lab attempts to elucidate the neurocognitive bases of language, and the relations between language and other cognitive domains, including memory, music, math, and motor functions. The lab's research examines both native and later-learned language.
12:00-1:00 PM	Lunch
1:00-1:30 PM	Travel to Gallaudet
1:45-3:15 PM	Hearing Brain, Deaf Brain, Differences, and Deaf Gain Prof. Laura Ann Pettito Description: Students will learn about neurological processes in hearing and deafness, and how such differences may establish certain capabilities and characteristics that afford particular benefits.

3:30-6:00 PM \$2000 Lab	<p>Pettito Brain and Language Laboratory for Neuroimaging Dr. Laura Ann Pettito Brain imaging of language fMRI - FNIR Description: Students will experience the laboratory in which Dr. Pettito performs her research. They will see a visual representation of the hearing, deaf, and speaking brains.</p>
7:00-8:00 PM	Dinner
8:15-9:30 PM	<p>Cognitions, Emotions, Environments and Mental Illness Prof. James Giordano Description: Students will learn how genes, environments and experiences can shape brain development and function, and how these processes can influence and be affected by mental health.</p>
10:00-11:00 PM	Student Down Time
11:15 PM	Bed check
Thursday, Day 5	June 27, 2019
7:15-8:00 AM	Breakfast
8:15-9:45 AM	<p>Prosthetics Neurotechnology lecture Dr. Justin Sanchez Description: Dr. Sanchez will speak about modern prosthetics, combining biomedical engineering with neuroscience to assist amputees. Students will learn about how people can regain sensation and mobility with new technologies.</p>
10:00 AM -12:30 PM Walter Reed	<p>Prosthetics Exploration Description: Curious about Phantom Limbs, and improving the quality of life for people who have had amputations? Students will work with the Wounded Warrior Project to help create prostheses that allow people to feel as if they still had their natural nerves. Students will also explore the cortical map!</p>

12:45 -1:45 PM	Lunch
2:00-4:00 PM	<p>Are <u>You</u> a Cyborg? Prof. James Giordano Description: Current neurotechnology is getting ever closer to realizing what was previously only the stuff of science fiction. The ever-expanding capabilities of bio-engineering are creating new iterations of brain-machine interfaces, as well as neurally-modeled machines. What might we become? What might we make? Are we there yet?</p>
6:15-7:15 PM	Dinner
7:30-9:00 PM	<p>Using an EEG and Neurofeedback Dr. Don DuRousseau Description: Students will visualize the neural networks that connect their body and mind by learning how to interpret the data provided by both machines. This way they can grasp how the electricity from the brain can be harvested for further innovation.</p>
9:45-10:15 PM	Discussion and Daily Debrief
10:15-11:00 PM	Student Down Time
11:15 PM	Bed Check!
Friday, Day 6	June 28, 2019
7:15-8:15 AM	Breakfast
8:30-10:00 AM	<p>Battlefield Brain: Bold Military Uses of Neuroscience and Technology Prof. James Giordano Description: Neuroscience and its technologies are currently being considered for security, intelligence and defense operations. How are these approaches being employed to optimize the abilities of soldiers, and to alter the will and abilities of others to incite violence. Has the brain become the 21st century battlefield...and are there limits – and preparations – that need to be engaged?</p>

<p>10:15-11:45 AM Dr. John Shook \$500</p>	<p>Different Cultures and Ethics of the Brain Dr. John Shook Description: Brain science is now a global enterprise. Thus, different cultures, traditions, and values often affect the focus, scope and conduct of brain research and its uses in medicine, public life and even politics. Can a system of neuroethics be developed for the 21st century global stage, and if so, what should such an ethics look like and achieve?</p>
<p>12:00-1:00 PM</p>	<p>Lunch</p>
<p>1:15-2:45 PM</p>	<p>Free will or Free Won't? Prof. James Giordano /Dr. William Casebeer If mind occurs in brain, and controls one's actions, are we merely "biological automatons"? Do we have "free will", or "do our brains make us do it"? Students will learn about neurological processes of decisions and actions, and discuss how these mechanisms might help to understand how we conceive- and respond to -morality, and laws.</p>
<p>3:00-4:00 PM</p>	<p>Outside-Inside: Body, Brain and Mind Prof. James Giordano How do environments affect the body and brain, and what is the relationship - and interaction - between the body, brain, and its functions - what we refer to as "the mind"? Can brain processes be harnessed to affect the mind? Can mental processes be engaged to affect the brain? And, how can brain and mind be trained to affect the body?</p>
<p>4:00-5:00 PM Nancy Harazduk \$500</p>	<p>Mind Body Demo- Nancy Harazduk Description: A practical demonstration of "brain-mind" and "mind-body" exercises to promote focus, calmness and healing.</p>
<p>5:15-6:15 PM</p>	<p>Dinner</p>
<p>7:00-8:30 PM John Shook-\$500 TBD-\$500 TBD-\$500</p>	<p>"Minding our Business": Careers in the Brain Sciences Panel Philosophy-John Shook Brain Scientist - James Giordano Neurologist-TBD Neurosurgeon - TBD</p>

	Description: A call to action. Students are never too young to make a difference, and neuroscience can be effective in a lab, in a hospital, but even in regular human life. Start making a difference in people's lives now, through conversation and through science.
9:45-11:00 PM	Celebration
11:15-1:00 PM	Packing and Social Event
Saturday, Day 7	June 29, 2019
7:00AM-8:15 AM	Breakfast Location: Copley 2nd Floor Lounge Dress: Casual Description: Rise and Shine! Continental breakfast will be provided by LI.
9:00 AM-12:30 PM	Time to Pack Up Location: Copley Hall Description: Students will pack up belongings and check out of their rooms.