

The National Academies of **SCIENCES • ENGINEERING • MEDICINE**

Imagining the Future of Undergraduate STEM Education

Learning in the World: Opportunities for the Students of 2040

April 19, 2022 | 1:00 PM-4:00 PM EDT

Moderator:

LEANNE CHUKOSKIE is an Associate Professor in the Department of Physical Therapy, Movement, and Rehabilitation Science in the Bouvé College of Health, and the Games Program in the College of Arts, Media, and Design at Northeastern University. Her lab develops sensor-enabled experiences for assessment, intervention, and education, especially for individuals with developmental differences. Chukoskie's research on gaze-driven video games for intervention and assessment has been funded by NIH for children on the autism spectrum and older adults experiencing cognitive decline. She has translated her training in the NSF-funded Science of Learning Centers into practice by applying active learning principles both in classes and in the internship program she leads for neurodiverse young adults. In 2017, Chukoskie co-founded BrainLeap Technologies which has won Phase I and II NSF SBIR awards and is seeking to change the way attention challenges are addressed by working through schools and directly with families. Chukoskie received her BA in Biological Basis of Behavior and Anthropology from University of Pennsylvania and PhD in Neuroscience from New York University.

Undergraduate Student Perspectives

DEANNA HUNT is a sophomore at University of Virgin Islands majoring in Computer Science.

DIVYA KIRANI is a current student at University of California San Diego, majoring in Biology.

AMY PHUNG is a recent graduate of Olin College, earning a degree in Robotics Engineering.

GEORGE SEATON is a current student at New York Institute of Technology majoring in Mechanical Engineering.

Examples of Real World Student Learning Experiences

SCOTT AUERBACH is a professor of chemistry at University of Massachusetts Amherst. His research focuses on modeling and designing advanced materials and catalysts of importance to emerging renewable energy technologies including biofuels and fuel cells. He was also the founding director of the Integrated Concentration in Science (iCons) Program, which challenges undergraduate science and engineering students to integrate fields of study to design solutions for societal problems in areas such as renewable energy and biomedicine. Auerbach graduated from Georgetown University with a BS in Chemistry and a minor in Mathematics, prior to graduating with a PhD in theoretical chemistry from UC Berkeley.

MAX SEDERER is a Faculty Cooperative Education Coordinator for Bioengineering and Chemical Engineering at Northeastern University. He has over 20 years of experience working with young adults toward independence, self-advocacy and employment. Sederer holds his bachelor's degree in Psychology from The George Washington University and his Master's degree within the Department of Education from Tufts University.

Panel Discussion on Improving Authentic Learning Experiences for Undergraduates

KELLY BOHRER is the executive director of the ETHOS center and director of community relations of the school of engineering at University of Dayton. She supports the integration of community engaged learning and scholarship by faculty, staff and students with community partners. Previously, she has served as biology lab coordinator, coordinator of community outreach in the center for social concern, and director of community engaged learning and scholarship in the Fitz center for leadership in community. Bohrer holds bachelor's and master's degrees from the University of Dayton in environmental biology, specializing in ecosystem analysis and wetland restoration.

CHRISTIAN BRANEON is a climate scientist and civil engineer who co-leads urban research at the Climate Impacts Group of NASA GISS. He is currently a co-investigator on a research project that will produce new data products, providing new information and insights on the role of coastal marshes in the global carbon and nutrient cycles. He also co-leads the Environmental Justice and Climate Just Cities Network at The Earth Institute of Columbia University and serves as a principal investigator for the GISS Climate Change Research Initiative. Braneon has bachelor's, master's and doctorate degrees in civil engineering from Georgia Institute of Technology.

TAMARA CLEGG is an assistant professor in the College of Information Studies with a joint appointment in the College of Education at the University of Maryland. Her work focuses on developing technology and learning experiences to support life-relevant learning environments where children and communities engage in science in the context of achieving goals relevant to their lives. Clegg received her Bachelor of Science in Computer Science from North Carolina State University and her PhD in Computer Science at Georgia Institute of Technology.

ARTHUR LEE is a Chevron Fellow and Senior Strategy Advisor within Chevron's Corporate Strategy and Sustainability group. He has been involved in a wide range of climate change issues from science to global policy and business impacts. Lee was appointed by the U.S. Secretary of Commerce to serve as a member of the National Climate Assessment Development and Advisory Committee (2011-2014), and was also a member of the Board on Atmospheric Sciences and Climate of the National Academy of Sciences (2008-2013). He currently serves on the board of directors of the International Emissions Trading Association (2014 – present). Lee holds a BS in Chemical Engineering from the Massachusetts Institute of Technology and an MS in Chemical Engineering from the California Institute of Technology.