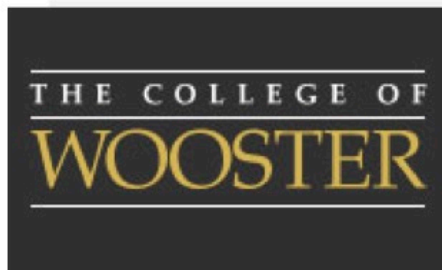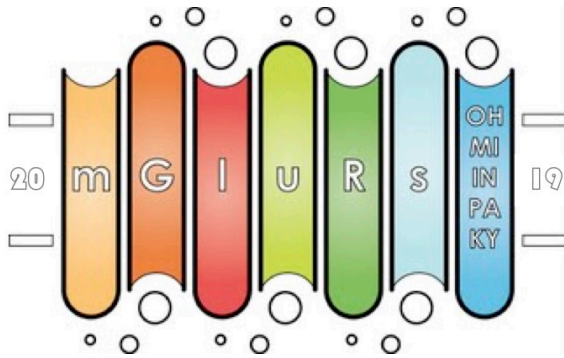# 11ᵗʰ annual Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience
hosted by the College of Wooster
September 28, 2019

Generously Sponsored by

11ᵗʰ annual
mGluRs

Saturday, September 28, 2019

All activities will take place in the
Ruth W. Williams Hall of Life Sciences (RWW)

Time	Activity	Location
8:30-9:30 am	Registration Light Continental Breakfast	RWW Knowlton Cafe
9:30 am	Welcome Amy Jo Stavnezer and Seth Kelly College of Wooster Provost Lisa Perfetti Announcement by Lora Becker, Nu Rho Psi Announcement by Amy Jo Stavnezer, FUN	RWW 060
10:00-10:45 am	Student Platform Presentations	RWW 060

Shruthi Kandalai, Ohio University
Shruthi Kandalai, Samantha Selhorst, University of Maryland School of Medicine, Dr. Corinne Nielsen, Ohio University. *Endothelial deletion of Rbpj in mice leads to perivascular abnormalities in brain and retina.*

Piper Rennerfeldt, University of Evansville
Piper Rennerfeldt, Miles Stiegler, Saurav Gupta, Michael Anderson, Dr. Vincent Campese.
The effect of daily intake of high fat/high sugar food on fear extinction retention in adult rats.

10:45 – 11:00 am	Break	
11:00 – noon	Keynote Address: Devin Mueller Department of Biological Sciences, Kent State University	RWW 060

Overcoming addiction: targeting the neural mechanisms of extinction and retrieval of cocaine-associated memory

Description: What drives addicts to seek and take drugs? How can we regulate or disrupt this behavior? Compulsive drug seeking and taking are the hallmarks of addiction and overcoming these behaviors has proven difficult. Work in the lab has revealed that the function of the medial prefrontal cortex is altered by cocaine experience, but behavioral and pharmacological interventions in rodent models can reverse or reduce aberrant drug seeking. In this talk, we will examine the neural mechanisms of extinction learning (learning NOT to seek) and memory retrieval, and how to harness these mechanisms to overcome cocaine seeking. We will also explore sex differences and the role of estrogens in extinction learning. Understanding the neural bases of extinction and drug-associated memory retrieval could lead to the development of pharmacotherapies that improve the outcome of drug rehabilitation programs.

Noon – 1:00 pm	Buffett style Lunch	RWW Knowlton Café

Please use this time to sit with and get to know new people

1:00 pm – 1:40 pm	Poster Session I	RWW 140

Even numbered posters – presenters should be present

1:40 pm – 2:20 pm	Poster Session II	RWW 140

Odd numbered posters – presenters should be present

2:30 pm – 3:45 pm	Breakout Session	RWW 060

Student Graduate, Professional School and Career Panel

Jordan Kindinger, Masters candidate Clinical Mental Health Counseling, Univ of Akron

Ksenia Klue, Doctorate in Physical Therapy candidate, Cleveland State University

Megan Mey, PhD candidate in Biobehavioral Sciences, Kent State Univ

Matthew Smith, Assistant Professor, NEOMED

Nikki Spahich, Scientific Technical Editor for *The Scientist*

Other panelist from Graduate School sponsors

Faculty Discussion	RWW 160

3:45 – 4:00 pm	Presentation of the Nu Rho Psi Poster Award	RWW 060

Wrap-up, Thank you and Goodbye

Panelists and Keynote Bios:

Jordan Kindinger is a 2018 graduate from Wooster in Cognitive Behavioral Neuroscience. Her independent study thesis was on the effect of sleep deprivation on memory formation in a strain of rats prone to ADHD-like symptoms. She is in her second year in Clinical Mental Health Counseling at the University Akron. For many summers Jordan worked with children/adolescents with behavioral disorders at Camp Nuhop and desired a career that allowed her to work with them one:one, without having to go to med school. She chose Akron because it includes a semester of practicum at the local clinic and then a year of internship at a location of her choosing; and she is currently work as a behavior specialist for an alternative school program. A neuroscience background allows her to bring a different perspective about the mental health field to classroom discussions.

Ksenia Klue is a 2018 graduate from Wooster in Cellular Neuroscience. Her independent study thesis was neurobiology research focused on proteins changes following sleep deprivation in *Drosophila melanogaster* as a model system. Through her skills learned at her four years at Wooster, in addition for her love for great health and helping others, she is currently in Cleveland State's Doctorate of Physical Therapy program, planning to graduate in 2021. Through her first year of graduate school, she has been able to use her Neuroscience background to aid in a research project that examines three different rehabilitation protocols in post-stroke patients. Ksenia loves this career not only because of her ability to act as a mentor to all of her future patients, but also to build upon her character and knowledge to be as well-rounded as she can be in the field.

Megan Mey is a 2017 Cognitive Behavioral Neuroscience major from The College of Wooster. Her independent study research focused on the effects of hormone replacement therapy on behavior and proteins that facilitate learning and memory in multiparous female rodents. This research strengthened her interest in neuroendocrinology and prepared her to join the lab of Dr. Gemma Casadesus at Kent State University. Megan is now entering her third year of her doctoral program in Biomedical Sciences with a concentration in Neuroscience. She studies the relationship between reproductive hormones and the pathology of Alzheimer's disease using CNS treatment and cRISPR/cas9 technology. Megan loves that her work requires her to learn and apply information from a wide array of scientific areas to address challenging questions in her field of research and looks forward to a career that facilitates optimum scientific communication.

Devin Mueller, received his Ph.D. from Concordia University and is currently an Associate Professor Department of Biological Sciences at Kent State University. His research program is concerned with the neural mechanisms of learning and memory that underlie drug use and emotional regulation, with emphasis on neurophysiology. Compulsive drug seeking and drug taking are the hallmarks of addiction, and overcoming these behaviors has proven difficult. Regulating these behaviors can be achieved by enhancing extinction learning and inhibiting retrieval of drug-associated memories. The lab uses animal models of drug administration combined with electrophysiological (in vivo and in vitro), pharmacological, and molecular techniques.

Matthew Smith, is a 2012 Neuroscience graduate of the College of Wooster and is currently an Assistant Professor in the Department of Pharmaceutical Sciences at Northeast Ohio Medical University as well as a Staff Scientist in the Rebecca D. Considine Research Institute at Akron Children's Hospital. He is a vision neurobiologist by training, receiving both his Masters (2014) and PhD (2016) from NEOMED. Matt's current research investigates pre-degenerative axon and synapse dysfunction that lead to a breakdown in eye-brain communication after traumatic brain injury and in other neurodegenerative disorders such as glaucoma. In addition to research, he serves as the Associate Director of the Integrated Pharmaceutical Medicine Graduate Program at NEOMED.

Niki Spahich received her Ph.D. in Genetics and Genomics from Duke University. After researching bacterial infectious diseases for ten years, she turned her focus to teaching and science outreach. Niki was visiting faculty at Wooster for one year, she co-founded a science communication nonprofit called Science Riot in 2016, and is currently a Scientific Technical Editor for *The Scientist.* The thing she loves best about her job is learning new things about science every day!

Grad school reps:
Mark Baccei, University of Cincinnati
Gary Landreth and Rene Baugh, Indiana University
David Morilak and Denisse Paredes, University of Texas, San Antonio