Neuroscience Seminar Series schedule

All seminars are currently scheduled Tuesdays from 4-5 pm mountain time. All speakers will be in-person unless noted.

Spring 2026

January 27th, 2026 – Dr. Morgan Barense
Professor and Glassman Chair in Neuropsychology, Department of Psychology, University of Toronto, Toronto, CA

Title: **Enhancing (and studying) memory in the wild**

Abstract: Memory is essential for shaping how we interpret the world, plan for the future, and understand ourselves, yet effective cognitive interventions for real-world episodic memory loss remain scarce. This talk introduces HippoCamera, a smartphone-based intervention inspired by how the brain supports memory, designed to enhance real-world episodic recollection by replaying high-fidelity autobiographical cues. I will present how this approach improves episodic recall, differentiates hippocampal memory representations, and affects mood. Beyond demonstrating the benefits of this intervention, I will present work that uses HippoCamera to investigate the relationship between sleep and real-world memory, as well as research investigating which features of distinct real-world memories should be emphasized to maximize their perceived similarity. Together, this program of work illustrates how real-world memory can be both strengthened and systematically shaped.

February 10th, 2026 – Dr. Alex Kwan
Professor, Meinig School of Biomedical Engineering, Cornell University, Ithaca, NY

Title: **Making synapses with psychedelics**

Abstract: Numerous drugs have the ability to alter our perception, cognition, and mood. Some of these compounds, such as ketamine and serotonergic psychedelics, have also shown promise as treatment for mental illnesses. The behavioral effects are often long-lasting, presumably because the drugs act on synapses and dendrites to induce plasticity in the brain. In this talk, I will describe a series of studies from my lab aimed at understanding the mechanism of action of psilocybin, using subcellular-resolution two-photon imaging, in vivo electrophysiology, rabies viral tracing, and other molecular and behavioral approaches in mice. The results provide insights into the drug action of psychedelics on neural circuits.

February 24th, 2026 – Dr. Daniel Kramer

Assistant Professor, Neurological Surgery, University of Colorado Anschutz Medical Campus, Aurora, CO

Title: **Brain computer interface: current state, future directions, and applications towards cognitive neural prosthetics.**

Abstract: Brain computer interface, the use of technology directly connected to the brain, has moved from science fiction to frontpage mainstream news. With wild claims and wilder investments coming from some of the most prominent and controversial figures, this talk covers the field in broad and narrow strokes. With a focus on practical use, current advances, and future applications, Daniel Kramer, MD a neurosurgeon and neuroscientist will discuss the state of the field and his own research in the development of a "cognitive" brain computer interface.

March 10th, 2026 – Dr. Erin Calipari
Associate Professor, Department of Pharmacology, Vanderbilt University, Nashville, TN

Title: **Redefining the role of "reward" systems in the brain.**

Abstract: A large body of work has aimed to define the precise information encoded by dopaminergic projections innervating the nucleus accumbens (NAc). Prevailing models are based on reward prediction error (RPE) theory, in which dopamine updates associations between rewards and predictive cues by encoding perceived errors between predictions and outcomes. However, RPE cannot describe multiple phenomena to which dopamine is inextricably linked, such as behavior driven by aversive and neutral stimuli. We combined a series of behavioral tasks with direct, subsecond dopamine monitoring in the NAc of mice, machine learning, computational modeling, and optogenetic manipulations to describe behavior and related dopamine release patterns across multiple contingencies reinforced by differentially valenced outcomes. We show that dopamine release only conforms to RPE predictions in a subset of learning scenarios but fits valence-independent perceived saliency encoding across conditions. Here, we provide an extended, comprehensive framework for accumbal dopamine release in behavioral control.

March 31st, 2026 – Dr. Yoni Ashar

Assistant Professor, Department of Medicine and Department of Psychiatry, University of Colorado Anschutz Medical Campus, Aurora, CO.

Title: **Efficacy and Mechanisms of Novel Treatments for Chronic Pain.**

Abstract: Yoni K. Ashar, PhD is an assistant professor and director of the Pain and Emotion Research Lab at the University of Colorado Anschutz Medical Campus. He completed his doctorate in clinical psychology and neuroscience at the University of Colorado Boulder and an NIH-funded postdoctoral fellowship at Weill Cornell Medicine. Yoni's research uses functional MRI brain imaging, natural language processing, and other clinical and computational tools to understand how mind and brain processes influence health, especially chronic pain. A main research focus is investigating a new class of psychological and neuroscience-based treatments aiming for recovery from chronic pain. His research has been featured on NBC's Today Show, Washington Post, WSJ, NPR, and other media outlets.

April 14th, 2026 – Dr. Kelsie Eichel

Assistant Professor, HHMI Hanna Gray Faculty Fellow, Molecular Cellular and Developmental Biology Department, University of Colorado Boulder, Boulder, CO.

Title: **How to build a polarized neuron: from *C. elegans* to humans.**

Abstract: Neuronal polarity—the formation of distinct axonal and dendritic domains—is critical for neuronal circuit formation and function. This extreme polarization is a defining feature that enabled the evolution of nervous systems capable of fast neurotransmission. As such, the loss of neuronal polarity is associated with neurological dysfunction and numerous disease states. Despite knowing for over a century that neurons are polarized and that polarization is essential for neuronal function, we still do not have a clear understanding of how neurons establish and maintain their polarity. Our understanding has lagged because visualizing the axon initial segment, a specialized compartment at the axon-dendrite boundary, has been difficult in living cells. Thus, the molecular choreography at the axon initial segment that drives neuronal polarity has remained mysterious. My previous work developed strategies to visualize protein dynamics at the axon initial segment in living neurons. This approach enabled the discovery of an active mechanism at the axon initial segment that is essential for maintaining neuronal polarity and is conserved from *C. elegans* to humans. This work reveals that the axon initial segment is a dynamic region with active mechanisms that are precisely regulated to control neuronal function. Overall, this work highlights the importance of visualizing protein dynamics within living neurons to illuminate mechanisms that drive neuronal function.