



Nicole Rust, Ph.D.

Department of Psychology
University of Pennsylvania

October 16th, 2026 // 3:30 pm
Room 522 McIntyre Medical Building

From Subjective Feelings to Brain Mechanisms: Advancing the Science of Mood

What happens in our brains to generate our moods? We don't yet know. Unlike functions like memory that can be measured objectively, mood is typically assessed with subjective ratings, such as “On a scale of 1 to 5, how excited (or upset) are you?” At the same time, our most precise neural measurements come from nonhuman animals, who cannot report how they feel. Mood is an extreme example of a central problem in neuroscience: we need measurements to create understanding, but we need understanding to design good measurements. Once we fully understand mood, we'll know exactly how to measure it (for instance, in an animal). But how do we get there?

In this talk, I will draw on the notion of “epistemic iteration,” proposed by the philosopher Hasok Chang, to describe how scientists tackled the conceptually analogous problem of understanding temperature in the 17th century. Building on this idea, we have developed a new approach to bridge the gap between behavioral and neural measures of mood. I will describe how we have used this strategy to identify a strong neural correlate of mood, reflected in the heterogeneous, persistent responses of individual neurons in monkey anterior insular cortex — a brain area implicated in human mood via lesions, fMRI, and microstimulation. Finally, I will describe how these insights are leading us to detailed accounts of how the brain converts experiences into mood and the mechanisms that keep mood within a healthy range, rather than spiraling out of control.

Followed by a reception in the 5th Floor Lobby of McIntyre Medical Building