

Teaching Statement ° Brennan R Payne, PhD

Learning is an active and exploratory process. Basic research in learning and memory tells us that deep learning and comprehension results from a self-regulated, goal-driven process in which learners make earnest attempts, “miss the mark,” and use the resulting error signal to re-calibrate and try again. My own personal experiences as a learner, both inside and outside of the classroom, have reinforced this point. As a non-traditional first generation college student, I began my undergraduate education with only a broad sense of interest in psychological science, but lacked a clear sense of the opportunities that were available to me within this field. Without an understanding of how psychological science *really worked*, I had few clear goals, poor understanding of where to effectively allocate my effort, and no clear feedback. It wasn't until I was afforded the opportunity to engage directly in undergraduate research that I not only began to understand the larger context in which I was participating, but also began to build a deep enthusiasm that sparked my career as a psychological and cognitive scientist. These early experiences have largely shaped my teaching philosophy and guided my interaction with students both in the classroom and in the lab. One of my primary teaching goals has been to orient students towards the multitude of opportunities available within the developmental, psychological, and brain sciences and beyond. Such early exposure is especially important as students enter the classroom from a diverse range of backgrounds with different skill sets. I believe that my breadth of research, teaching, and professional service experiences offer not only a unique perspective, but also a unique set of skills to apply within and outside of the classroom to enhance student learning.

My substantive teaching interests are in adult development and aging, language processing memory, cognitive psychology, cognitive neuroscience, and statistics. At Utah, I have taught a large undergraduate survey course in *Cognitive Neuropsychology* three times. Student feedback has revealed that the courses were largely successful. I have also taught a graduate course in *Cognition and Neural Sciences Methods*. In addition, Trafton Drew, Matt Euler, and I developed and co-taught a novel hands-on EEG methods lab course (*Advanced Cognitive Electrophysiology*), which I recently lead as instructor of record. Students get hands-on training in EEG experiment design, data collection, and analysis. The course culminates in students conducting their own ‘from scratch’ mini-study and presenting the results. We secured a large equipment grant from the Vice President for Research to support an independent EEG lab on the 9th floor that students use for this course. In the future, I am interested in developing courses in more specialized topics for graduate upper-division undergraduate students on topics including “Language and the Brain” and “Cognitive Aging.”

I believe that strong statistical and quantitative skills should be part of a well-rounded toolbox not only for every basic and applied researcher but also for any consumer of research. At the University of Illinois, I was the Instructor of Record for a graduate-level course on Applied Hierarchical Linear Modeling. I have also developed and taught a new *Introduction to Quantitative Methods* (PSY 5499/6499) course that was designed both for undergraduate and graduate students. This course was taught completely in the R program for statistical computing, giving some students their first experience with writing code and scripts and generating reproducible statistical analyses. Student final projects and course evaluations revealed that the course was largely successful. I have additionally designed and instructed several workshops that were attended by undergraduate students, graduate students, and faculty, on topics such as the analysis of neural time-series data.

In all of my areas of focus, I aim to apply cognitive and psychological models of learning and instruction to guide my teaching approach. I have always held that our scientific knowledge of learning should invariably inform pedagogical practice. Despite a growing body of research on cognition, education, and the brain, only few practical links currently exist between this research and educational practice. As an educator and cognitive scientist, I aim to use my training to create an evidence-based, student-centered, and engaging learning environment both in the classroom and in the laboratory.