When I entered graduate school, my goal was to become teaching faculty at an undergraduate institution. During the five years of my doctoral training, I pursued this goal through outreach, self-motivated curiosity, and experience as a teaching assistant and guest lecturer. In August 2019, I achieved that goal by becoming a Senior Lecturer at Vanderbilt University. I am currently teaching four upper-level cellular/ molecular Neuroscience courses of my own design and overseeing the Neuroscience Honors Program. My 18 months here at Vanderbilt has been wonderful so far, and I am excited for the opportunity to continue and expand my contributions to the community. During the pandemic, I have emphasized building a classroom community that includes and values each student and redesigning assessments to better capture the skills my students are developing. This enthusiasm encourages my students as they learn how to think like a scientist, how to solve problems, and how to ask questions.

One of my main goals is to teach my students how to think like a scientist. My students gain this skill through interpreting data and drawing accurate conclusions based on the provided information. Additionally, they collaborate with their classmates to evaluate the quality of data and discuss whether it is convincing. In the beginning of the semester, I model this for my students, demonstrating how research questions are formed by identifying gaps in our knowledge. I present research which addresses a specific neuroscience question, taking them through the steps of how to read a relevant scientific figure, and soliciting questions about possible conclusions and confusing aspects. In my Neurological Disease course, I provided my students with contradictory data, introducing conflicting theories which argue that attention deficit hyperactive disorder is due to either too much or too little dopamine activity. Initially, they struggled to reconcile these competing hypotheses in their minds, but after discussion in small groups and with the entire class, students could explain the two theories and assess strengths and weaknesses of each on a summative assessment. As the semester progresses, my students continue to practice their scientific thinking by reading research papers together in small groups and, analyzing figures individually in their homework assignments to identify possible hypotheses and conclusions. This allows me to assess whether students are understanding how to employ scientific thinking with their colleagues and on their own. At the end of the semester, students evaluate a research article, and translate the findings and techniques into language accessible to a broader audience. The ability to take a complex idea and make it their own helps students develop confidence as an expert and allows me to assess whether they fully grasp the importance of the research findings. Scientific thinking is crucial to any student who pursues research or data-based career paths, but it also empowers all my students to think critically about ideas, questions, and data in their everyday lives.

In addition to fostering scientific thinking, I encourage students to problem solve, working through academic and personal challenges. Students commonly choose to attend my office hours or schedule appointments, knowing that I encourage questions and want to enable their learning. When students come to me to discuss a challenging class topic, I ask them to explain their current understanding of the topic, encouraging them to examine their own line of thinking. This practice leads students to identify flaws in their own cognitive process, and self-correct, providing the answer themselves. I supply the relevant pieces of information and guide them as they bring pieces together to clarify the concept. Students practice this tactic in class as well, considering questions such as how chronic exposure to psychostimulants changes D2 autoreceptor expression and effectiveness and how these modifications could possibly contribute to tolerance or sensitization. They learned about receptor regulation and cellular adaptations to continue presence of a drug in previous lectures but had not applied those concepts to a real-world example. They wrote down their initial ideas individually while watching the lecture video, and then reviewed their answers in small groups via breakout rooms. As a class, we discussed how these changes will impact the dopamine system overall, and why those changes may seem contradictory from a systems level view but are more logical if you examine the system from a bottom-up cellular perspective. Having worked through the logic of this process on their own, students developed a better understanding of how to incorporate new data into established scientific reasoning. They build confidence in their cognitive abilities, finding themselves empowered to consider opposing options and make decisions.

Most successful scientists are curious and self-motivated learners. I model for my students that we are at our best when we acknowledge what we do not know and formulate a way to address our unfamiliarity or ask for help. We foster a community of respectful discourse in which students benefit from seeking out answers on their own, from exchanging ideas with their classmates, not relying solely on the expertise of the professor. If a student seeks a clarification in class, I ask their classmates to provide an answer before I chime in. Students’ responses to these questions reveal what they find interesting or confusing, and I adapt my delivery of the material to emphasize or clarify that concept. Another benefit of admitting what we do not understand is the chance to learn something new. When students expressed an interest in exploring the use of psychedelic drugs to treat psychiatric disorders, I found a case study examining the use of MDMA to treat post-traumatic stress disorder (PTSD) and adapted it to emphasize concepts from the course. In addition to providing an opportunity for students to gain a deeper understanding of the topic on their own, it prepares any future medical students for the case-based learning employed in medical school. Offering students the freedom to learn more about a topic of their choice in a structured way develops skills that will enable them to investigate their own scientific questions.

Finally, I would like to note that professional and pedagogical improvement is important to me,

and I expect to continue honing my skills in the future through seminars, workshops, classes, and

feedback from my colleagues. The Center For Teaching has been instrumental in my growth as an instructor during my time at Vanderbilt. They provide a community of experts and fellow teachers who are enthusiastic about engaging students and fostering their success, a community I can turn to with my own goals and challenges. Finding connection with colleagues who share your values is essential to my professional success and Vanderbilt offers many opportunities to do so. I try to provide that for my students, building relationships with them in individual meeting and during visits to campus with my dog for socially-distanced informal interactions. In my future at Vanderbilt, I look forward to expanding my academic community and demonstrating to students and fellow faculty that I value them through my continual learning, teaching, and service.

Sincerely,



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