

3. Mentoring Plan

I love inspiring students and helping them make their dreams come true. My goal for *all* my mentees is to support them in gaining the skills, knowledge, experience, vision, focus and confidence to pursue those dreams successfully. ██████ dreams of becoming a zoo research scientist; I'm confident I can help her achieve that goal. Our mentoring relationship began her freshman year during our first advising session, when I asked where she'd like to be in 10 years (answer: completing a graduate degree, working towards a career in a zoo setting). I encouraged her to begin planning not only the courses she'd complete at GVSU, but a series of professional-development activities to support her goal, providing guidance, but encouraging individuality.

██████ came to GVSU with a stellar record and tremendous promise. She's done very well. An honors student pursuing a Biology major and a complementary minor in Nonprofit Administration, ██████ has earned a very respectable ██████ overall GPA and a solid ██████ GPA in biology courses. During her sophomore year, she was selected from a pool of highly qualified applicants for a full-time summer internship at the ██████ Zoo (where she worked with a former mentee, now a Great Apes keeper). This full-time work taught her many practical skills, and opened her eyes to the contributions she could make working at a zoo, emphatically including research. She was also introduced to enrichment, activities intended to stimulate explorative or foraging behaviors that can replace the stereotypic, self-destructive, aggressive and other negative behaviors commonly observed in captive animals that are stressed and bored. She was hooked, and returned to GVSU eager to pursue the next phase of her training: research.

I've mentored many undergraduates successfully, but a few relationships have been less productive and transformative than I'd hoped. I learned from those experiences, which shaped the key features of my mentoring plan for ██████, which are detailed below.

First: *Very careful selection of a student.* This project is ██████-centered (we developed it together, based on her interests and our collective expertise), but I only offered to work with her after serving as her academic advisor for more than two years. I know her *well*. She is mature, organized and focused. When asked to do something, she gets it done in record time. She asks questions about details most wouldn't even notice. She goes beyond the call of duty, thinks critically, and is *very* productive. Her award-winning internship links directly to this project; she joyously immersed herself in its development. My most successful collaborations with undergrads have always featured dedicated self-starters like ██████. I like our odds!

Second: *Thorough exploration of the literature.* We began searching the literature on enrichment and its assessment last fall; over winter break, ██████ amassed more than 35 articles and books linked to our project, many addressing the groups of organisms we propose to study, and we continue locating more (as well as sharing resources with our colleagues at JBZ). This helps us determine the frontiers of work being done on enrichment and its assessment, and significantly influenced this proposal. This semester, ██████ is registered for independent study credit to allow her ample time to peruse this literature, discuss articles with me, complete an annotated bibliography and begin a review paper on enrichment of captive animals; our discussions of this literature will continue this summer.

Third: *A prolonged start-up period.* Naïve scholars require *time* to learn and experience trial-and-error prior to collecting data, because research is a messy business. We have that luxury. All animals proposed for this study are already receiving enrichment, providing the opportunity to train ██████ thoroughly to conduct intensive all-occurrences data collection in diverse conditions (e.g., cold, rainy weather; boisterous schoolkids present) and beta-test data sheets. She may collect quantified baseline data without pressure (if mistakes are made, simply

do it again). We'll have access to the zoo from March until data collection begins in late May, so she'll have ample time to master fundamental skills well before the experiment begins.

Fourth: *Structured, weekly lab meetings* that combine Socratic discussion, reflection on past work, troubleshooting or adjusting of scheduling as necessary, discussion of selected articles and monitoring of ██████'s growing competencies and independence.

Fifth: *Replicates of the experiment*, so ██████ can repeat the cycle of observations up to three times during the S3 experience. Zoo research is constrained to case study-like singularity (we have no true replicates), and our design is ambitious (each cycle requires a minimum of 40 observation sessions if four species are included). But it is also very efficient, providing opportunities for ██████ to experience the cycle once as a well-supported novice, once in a transitional state, and once with complete independence. Whether or not zoo personnel can perfectly offer enrichment as scheduled (we are prepared for constraints that necessitate adjustments to the plan), weather cooperates, or unanticipated complications arise, ██████ will gain a rich, comprehensive *and* realistic experience.

Sixth: *journal writing* to elicit reflection about learning experiences, questions, insights, frustrations and joys in addition to structured lab-notebook entries. This requirement will ease ██████ into the end-of-project writing phase characteristic of productive scholars and help her draft her reflective paper beginning the very first day. Additionally, reflective writing will "force" her to stop, take a metaphorical look around, and complete the S3 experience with *awareness*- of everything she's learning, all the ways she's growing, how she truly feels about the experience, and the many ways in which research is, to paraphrase Monk, a gift- and a curse.