STATEMENT OF TEACHING PHILOSOPHY

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in progress, feedback welcome

There are many benefits to teaching including helping ones own mastery of a subject and providing constant practice communicating and adapting to our audience's needs. However, I also see teaching as a service to the field– a way to pay it both backward and forward. I aim to teach as I have been taught in the past and how I hope to be taught in the future. I have benefitted from teachers who allowed me to take control of my own learning and provided resources that let me learn at my own pace. At the end of a class I am teaching, I consider a successful student to be one who is self-directed and is comfortable self-pacing.

My main goals for my students:

- Collaborate effectively with their peers.
- Feel comfortable giving and receiving feedback.
- Communicate findings clearly and concisely to a range of audiences.
- Build intuition for how to solve problems.
- Establish confidence in the ability to learn independently; feel empowered to not know the answer yet know how to start trying to figure it out.

However, I recognize that students with a wide variety of backgrounds will enter the class, and they may need varying levels of support before reaching these goals. I aim for an apprentice style approach to teaching as statistics is a "contact sport." I also see the field of statistics as an art as well as a science, so I believe that students must reach the above goals and learn by doing.

Communicating our work to our peers and non-technical audiences is an important step in the data science pipeline, but formal training in how to write about our work for different audiences is lacking. Professor Deborah Nolan and I co-developed and co-taught a new course called "Communicating with Data: The Art of Writing for Data Science" to try to bridge this gap. An example of the phases of the apprentice style approach used in our writing for statistics class are as follows:

- "**Phase I: Modeling** - The complete act is observed and contemplated." When introducing a new style of writing for a particular audience we would often write together live in class via Google Docs, go through concrete examples of good and bad writing, and discuss our personal preferences as instructors and what works for us when we write.

- "**Phase II: Approximating** - In private or in non-critical scenarios, the observer begins to mimic the actions of the teacher." We provide frequent but low stakes (evaluated on check, check-plus, check-minus system) prompts that allowed the students to choose one out of a few per week to work on. The goal of these frequent and widely varying writing samples was to create a portfolio of writing that the student could refine and use in their future endeavors. The choose-your-own-adventure style allowed for flexibility and freedom to shape their own experience. We provided quick and frequent feedback as well as built in class time so they could receive feedback from their peers.
- "**Phase III: Fading** - The learner, still within the safety net, starts operating in a more detailed manner, playing within the structure that has been taught." We required further revisions of their work based on peer and instructor feedback and a reflection on what was changed and why the changes were necessary.
- "**Phase IV: Self-directed Learning** - The learner attempts the actions within real society, limiting him/herself to the scope of actions in the field that are well understood." Once pieces of the students portfolio were edited based on feedback, we had students choose a subset of work to refine further for more high-stakes grading (letter grade). They must decide what has potential based on our previous feedback and their judgement of the efficacy of their editing process.
- "**Phase V: Generalizing** - The learner generalizes what has been learned, trying to apply those skills to multiple scenarios and continuing to grow in ability in the field." During the final portion of the class, we encouraged the students to promote their work beyond the class and provided resources for setting up their own blog to make their past and future writing available for others to see.

Going through this apprentice-style process relies heavily on students willingness to put extra time and effort into this particular class since the goal is to write and rewrite frequently. It can be challenging to motivate students who want to know what minimum baseline will give them a desired grade. By emphasizing progress between drafts and rewarding out of the box thinking, we attempt to break down the worry about grades and build the desire to challenge themselves while developing and honing their skills.

These phases can be adapted for more traditional and quantitative statistics classes. Teachers could have students pick from a set of challenging problems each week and build a more mathematical portfolio. Peer feedback on problems in common and gradual hints from professor can replace the editing process. As we go through the apprenticeship phases, I encourage students to learn about their own learning process by keeping a journal of thoughts related to the class and tracking the time spent on my class. Using their statistics skills to better understand their

strengths and weaknesses and make data-driven decisions about what works best for them can help them self-pace more effectively.

Beyond tracking performance based on rubrics for each assignment, progress is determined by time to proficiency and question quality. Students should require less and less intermediate feedback to get to proficient status for each assignment as they internalize the properties of good writing. As they build confidence, they should also be asking less operational questions ("Is this right?") and be focusing on bigger picture questions ("Does my approach seem reasonable?"). Additionally, they should also be identifying particular aspects of their work that may need more attention instead of asking for blanket feedback across the whole assignment e.g "I feel like my transitions are weak. What do you think?" v. "How is my paper?"

I hope students internalize more than just the core content I present throughout my class, but also core values of inclusion. I aim to promote intellectual diversity, and I am committed to ensuring an inclusive space for students to learn. I show this commitment by:

- Asking for and respecting preferred pronouns.
- Addressing microaggressions as they occur, stressing intent v. impact.
- Ensuring everyone has space to speak by encouraging those who are quieter and balancing more outgoing speakers.
- Bringing a diverse set of speakers to class and choosing reading and supplementary materials written from a wide variety of perspectives.
- Monitoring peer feedback to make sure it is constructive and pairing different students in peer review sessions throughout the semester so that everyone gets to hear other views.
- Asking for feedback frequently and being responsive to necessary re-calibration of the course.

I have been fortunate to work with a small class size as well as have an experienced faculty member as a co-instructor for the writing class described above. My next teaching goals are to come up with strategies to bring the type of experience described above to a larger class and to incorporate activities that build writing skills into more traditional statistics classes.

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