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## Teaching Statement

My main role as a teacher of post-secondary mathematics is to guide students into abstraction and to effectively encourage them to develop their curiosity and use it along with their own vital energy to learn the mathematical tools they need to achieve their goals.

That first sentence is the essence of my teaching statement. The rest of this document is an explanation of the precise meaning I associate to the terms I used, as well as some concrete steps I take to achieve my teaching goals.

Let me explain briefly what I mean by “abstraction”. There is a general way of thinking that students of all disciplines need to acquire. Students come into university with a flawed understanding of what it means to learn, in particular what it means to learn mathematics: I believe, due to my interactions with them, that they mostly model learning as a shopping experience, or perhaps a large feast with too much abundance of food to taste everything, and where they are tasked with obtaining every item from a long list. In short, they see learning as an acquisition of information. Personally, I know that to achieve my professional goals, I need to learn more than facts and I need to make my learning as efficient as possible. This means that I have to understand two things, which I consider to be abstractions. First, that learning is a building that is constantly undergoing renovations, so I am always on the lookout for mental processes that can improve the way in which I learn. Second, that learning is more about getting acquainted with the strange ideas that are the source of the new information that is being presented to me, rather than acquiring the information itself. On top of that, learning involves being introspective enough to ask “Why is this idea strange?” and then “How would I have needed to be thinking in order to come up with this idea myself?” This is the kind of learning that we expect students to do at the post-secondary level and I think this is fundamentally different from the kind of learning most of them are used to.

In order to impart these notions on my students, a lot of careful planning and mindfulness are required. First of all, the channels of communication must be as open as possible, since I see it as my role as a human teacher to be empathetic and to tailor my teaching to suit my students’ needs, whom I need to familiarize myself with. Facilitating conversation involves on my part first making an effort to be approachable, by keeping in mind that my students are smart individuals with ambitions and fears and everything else being an individual entails and, second, creating an open, comfortable and encouraging classroom environment that makes it clear that my goal is to help my students succeed in working hard and developing their curiosity. To elaborate on the second point: from the first day of class, I will make explicit what my students’ learning objectives are, what I expect from them and why I am making the choice of teaching them. I will encourage discussions and questions from the start, and build pauses and breaks into my lecture to give them time to breathe, catch up, ask questions and check their understanding, by asking them simple as well as nontrivial questions of my own. I am confident that such an approach will help create a classroom environment where students feel like I am truly on their side and where they can feel comfortable participating and learning actively. This, in coordination with the level at which I present the topics should make them ready to succeed in the course and thus reduce the feared math anxiety, which is a truly damaging state of mind in this discipline.

Let me now be explicit about my use of the word “guide”. I firmly believe that the most meaningful learning occurs when it is self-motivated and self-achieved. This is the way to form the deepest and most solid understanding. Anything less than that is a shadow of the ideal. These shadows can be pretty good, otherwise I would not believe that teaching is worthwhile at all, which it obviously is. However, my ideal teacher is a version of Socrates that is more understanding and less preachy. In my classroom, while there will be a healthy dose of lecturing on my part, emphasis will be placed on personal discovery on the students’ part. My style of lecture is to begin a conversation by stating some problem that has a philosophical allure or that seems otherwise interesting or important. My duty at that point becomes to lead the conversation by asking questions that point to surprising or important aspects of the problem, and to gently lead students towards some ideas that will provide a solution. Through the semester, they will have to reach into themselves in order to develop their curiosity and introspection. In this way, I am hoping to be a guide, and not an absolute authority, and to introduce them to effective ways of tackling problems they may encounter or, better yet, come up with.

To conclude in a few short words, my methodology for achieving the goals outlined in the first sentence above consists of clear communication both of my expectations and style of teaching and of their needs and

goals, of empathizing with students and of carefully planning classroom conversations that flow from natural problems or surprises so that students can internalize the mathematical ideas required to study the subject matter.