Teaching Statement

My teaching philosophy centers around four core principles, each of which I will detail in the following sections:

1. Encourage and develop critical thinking and intelligent questioning skills within my students.

2. Build scientific literacy so that my students can engage effectively and intelligently with science.

3. Foster understanding of ideas.

4. Place emphasis on human agency, hard work, and development of ability to think over reliance on AI.

As a teacher, these four principles underscore and inform my approach to my classroom.

Encouraging Critical Thinking

One of the most important skills that an student can develop is critical thinking. With the "information" deluge that our lives have become in recent years, the capacity to think critically, logically, and reflectively is more important than ever. This need is especially acute when trying to determine what is good information and what is not. To encourage critical thinking, I intend to include as many logical thought exercises in my classes relating to scientific thinking as possible. These can take many forms, for example:

1. using evidence and provided information to draw logical conclusions about the life history of an organism / ecosystem;

2. debating the strengths and weaknesses of gradualism vs. punctuated equilibrium;

3. presenting a hypothesis, and encourage the students to consider how they might approach addressing said hypothesis, and where they might find the information they need to do so;

4. doing thought exercises where students are presented with a conclusion on a subject, several conflicting pieces of "evidence" on said subject, along with "sources" (such as social media posts) and "publications" (scientific journals, non-scientific journals, news coverage), some details about these sources and their potential/explicit biases, and task the students with arguing whether or not they consider the conclusion drawn to be a reliable one.

Above all, the goal is to impart upon my students the importance of rationally, objectivity and logically analyzing ideas, as well as recognizing when one is getting bad information. Developing this skill is especially important for future leaders, who must be able to pick apart arguments and information to separate the good from bad, recognize when a bias is present in the information, remain open to consider other points of view, and be able to draw logical conclusions based on evidence.

Building Scientific Literacy

Like critical thinking, imparting an understanding the scientific method is of paramount importance, even to students who do not intend to enter STEM. While is a general understanding that science exists in the world, and that people do science to figure things out, what science actually is, what it does, and how it works is far more arcane. This difficulty in appreciating the nuance of the scientific method is particularly pronounced currently, given that pseudoscience masquerading as true science abounds; it is easy for genuine scientific discovery to be lost or discredited. Thus it is crucial for the next generation of thinkers and leaders to have a firm understanding of science and the scientific method. To this end, I make every effort to work the scientific method into the foundation of my classes. Furthermore, I would

to run a seminar course on the scientific method, where the students learn about the process of science. This seminar would include reading on the history of the scientific method and thought exercises on how to approach formulating scientific questions, and would culminate in the students developing a research proposal. By having the students go through the process of developing their own projects, I will impress on them not only how the process of science works, but also ensure that they can properly engage in discourse about scientific results.

Fostering understanding of ideas

Within the sciences and education in general, it at times feels like there is an emphasis on rote memorization of facts and trivia versus genuine understanding of the concepts being presented. For some subjects this may be enough to fulfill the Course Outline of Record for the class. But for students being held to a higher standard like those of Deep Springs College, I want to give them something more. I want to foster genuine understanding of a subject or idea, not merely have them memorize factoids. Previously, I've incorporated in-class questions into my lectures where I pose a question to help the students synthesize what they've been learning. These questions are conceptually related to what I've been presenting, and require the students to engage with the ideas on a deeper level. Even my exams involve this method by presenting the students with a scenario that is directly related to concepts we have covered in class. In a community college setting, this was as far as I could take this concept. But I believe Deep Springs College's class size and format would let me expand upon this practice. As such, rather than collect the questions at the end of class, I would have the students keep and reflect upon them, then address them in a proper discussion section. By having the students reflect on and discuss these questions, it provides not only them with an opportunity to reflect further on and even do independent research on the ideas presented, it allows me to further develop my own understanding. This relationship is a mutualistic one, as it creates a positive feedback loop of improvement not just in the student's understanding, but my own ability to present them with questions to build their understanding.

Emphasize human agency

In recent years, there has been an rapid explosion in the availability, adoption and use of generative artificial intelligence, including in institutions of higher learning. While these large language models are presented as merely tools, there is mounting evidence that their use stunts the user's ability to think and learn on their own. This fundamentally defeats the purpose of education, which is to not only teach students the information they need, but how to think on their own. As such, it is my firmly held opinion that while AI can be a powerful tool in the right context it is fundamentally antithetical to the learning process, as it provides a quick, easy answer that doesn't require effort or thought to get. This phenomenon is something I have observed when talking to my students, friends and family who regularly make use of these large language models to get instant answers to questions. Academically, it promotes intellectual stagnation and credulity rather than growth and skepticism because it is treated as a definitive authority. But if the information fed into the model is poor or false to begin with, the output will also be false. It promotes laziness and mediocrity because it provides an easy solution that needs barely any effort, rather than encouraging and building mental resilience, exceptionalism, and a strong work ethic. And, it offloads the responsibility of thought and self-determination to the algorithm, removing the responsibility of consideration, debate and compromise from one's thought process. All of the above are strongly antithetical to not only the idea of education, but to Deep Springs College's own three pillars. As such, my classes and exercises are going to be structured in such a way as to discourage the use AI on assignments, while also emphasizing that it will be those who can think without the aid of an AI that will have an advantage in the future. I know that AI is here, and there is little we can do about it. But, I can at the very least encourage students to develop their minds to the point that it becomes what it is meant to be. A tool. Not a replacement for their own development as thinkers and leaders.

Mentoring and Projects

Mentorship in as intimate an environment as Deep Springs College will inherently be quite different from that of other institutions that I've taught at. Unlike at the Santa Rosa Junior College or University of California, Berkeley, where the relationship between myself and my students was more transactional, I expect Deep Springs to allow for a more personal form of mentorship. In many ways it will be more akin to the relationship between graduate students and their advisor. As such, I will be able to develop a more interpersonal relationship with my students to better find ways to facilitate their learning, such as mnemonics, thought exercises, and associations. I also intend to develop several ongoing projects, such as seasonal monitoring of ecosystems in Deep Springs Valley and beyond, that will involve the students not just as assistants, but engage them as active participants. Such projects will involve work at Deep Springs College proper and will take the students beyond the College into Deep Springs Valley itself, or even further abroad into the White Mountains, Mojave Desert, or Sierra Nevada. These projects could also facilitate greater collaboration between Deep Springs and the land managers at the Bureau of Land Management and Forest Services by providing valuable monitoring data for their land management efforts. For example, one such monitoring project could involve the special status species in Deep Springs Valley like the black toad, sagebrush cholla, and Mojave phacelia, among many others.

One of the first concepts that I introduce my students to in my introductory classes is the Dunning-Kruger effect, which describes a phenomenon where one is initially overconfident in one's abilities when one gains a small amount of knowledge. But as one learns more, there comes a realization of how little one knows, losing the overinflated early sense of confidence, but gaining an understanding of how much more they have to learn. The point of introducing the DK effect is not to discourage my students, but encourage them to continue with their self improvement as scholars, and show them that the realization of just how much more they have to learn is a natural part of the process of growing. After all, awareness of what one doesn't know, and how much they have yet to learn, is one of the qualities that separate great minds from everyone else.

Something else that I encourage my students to do is to ask me questions. In my experience, students that feel comfortable asking questions are more willing to engage with materials on a higher level. As such, I make it clear that I am willing to be questioned on a subject or idea that I present and that I encourage such questioning it because asking questions is crucial to critical thinking, since one cannot engage something on a deeper level without questioning it. Furthermore, if one person has a question, it is likely that others will as well. Such questions could even act as a springboard for the discussion section. Along the same lines, I want to encourage my students to question because it means that they are not blindly following, but learning to recognize when they realize they don't know something. It also serves as an opportunity for me to grow as a teacher, because it can help identify areas I need to improve in my own knowledge of a subject.

Conclusion

I believe that all of the above makes me an excellent candidate to teach at Deep Springs College. My beliefs in the value of hard work, a personal connection between teacher, student and their education, and the value of being the master of one's own fate all alignment with the core pillars of the school. Furthermore, the intimacy of Deep Springs and the natural, living classroom of the valley and surrounding ecosystems, lends itself to a more wholistic, tactile form of learning. One that I particularly enjoy engaging with. So, in conclusion, I believe that my teaching style and methods would greatly benefit from an environment like Deep Springs College, and be of benefit to it.