1. Teaching Philosophy

The core principles that guide my teaching practice are discussed below. Experiential learning components in the lab and in field courses are a primary channels through which I incorporate parts of this philosophy into my teaching. My goal is to focus on designing educational experiences for students that promotes translational skills in problem-solving, communication, self-motivation, leadership, creativity, and critical thinking. Experiential learning components weaved into field and lab-based courses at various stages from course design to discourse play a critical role in meeting these objectives.

Create an active learning environment: I strive to engage students to interact with me and among each other during lectures and beyond the classroom. This helps transform classrooms into a forum to discuss and exchange ideas rather than a venue for passive listening. I believe opportunity to discuss ideas is fundamental to developing critical thinking skills. The approach provides immediate feedback on student's understanding of a topic and helps me plan forthcoming lectures. This also helps students develop an inquisitive mind and ensures that relevant questions are not left unasked.

Ensure that no student is left behind: I believe that every student has tremendous untapped potential and a good mentor can help student realize their strengths and short comings. I have a deep personal interest in student success and therefore believe in being available to every student as a mentor throughout their program. Our students come from diverse backgrounds and with varied interests and they learn at different pace and ways. My goal is providing a platform where everyone has the resources to succeed.

Create a respectful learning environment: I strive to create an environment of mutual respect where the focus is on learning. I have learned more from students than I expected to learn. I keep an open mind in assessing student work and during discussions, as I strongly believe that new ideas will only come to the fore if people are encouraged to think out-of-the box and without fear of being ridiculed. I believe in providing a respectful, distraction-free learning environment, where student concerns and questions are discussed adequately and resolved.

Provide realistic learning goals and a tangible path to the goals: I also think it is very important to follow what I would describe as a *"direction-destination"* approach in planning a course or lecture. I provide the students at the outset with the objectives of the lesson (*direction*) and what I expect them to accomplish at the end of the lesson (*destination*). This approach gives them a purpose for being at a lecture and, validates the importance of course in the program and is a vital motivational factor. I believe it is also important to periodically

revisit to the objectives as the course/lecture evolves and remind students of the goals and how much progress has been made towards achieving these goals. This also helps me to stay on track with the course learning objectives. This approach goes a long way in eliminating student frustration and common class room responses like “why do I have to learn this?”, “why is this relevant to this course?”, “I don’t know what I have accomplished in this course?” etc.

Stress the importance of interdisciplinary science: My experience in learning, teaching and research in geoscience has opened me to a world of science that is complexly interrelated. It is my goal as a teacher to expose these often-hidden interrelations to the students and train them so they can tackle a problem through multidisciplinary methods. There is a significant fraction of students who choose geoscience as an escape route from other fields of science like physics, chemistry and math. But geosciences have evolved into a quantitative and interdisciplinary science where concepts and techniques from other branches of science are essential problem-solving tools. Therefore, I adopt an integrative approach in planning geoscience courses, where students are trained to be able to integrate methods and techniques from different scientific disciplines.

Promote experiences that facilitate life-long learning: While I share my expertise in mineralogy, igneous petrology, metamorphic petrology and geochemistry with students, my aim is to instill in them a keen interest in understanding and discussing science. I strongly believe that the role of an educator is not just to teach some specific topics to students well, but to inspire students to learn more on their own. As I work to meet my own professional goals and enhance the learning experience of students, my objective as a teacher is to prepare my students to be respectful citizens who are able problem-solvers capable of analyzing and discussing and finding solutions rooted in science to benefit the community.

2. How Experiential Learning practices underpin my teaching philosophy

In general, the experiential learning practices in my courses can be broadly classified into four types of activities:

Discovery-centered learning activities, where learning occurs through direct experience of the student. This involves student performing original work that generates new knowledge or generates new data to test previous hypothesis or explore deeper understanding. In my case, these include student engaged learning that are characteristic of field courses, problem solving using real data in labs and tutorials, undergraduate thesis research in the fields of geochemistry, igneous and metamorphic petrology etc. All of these teaching functions involve hands-on training and development of practical knowledge.

Integrative learning activities, where students learn to connect understandings and skills from multiple disciplines or courses for problem solving or to construct new knowledge or understanding. These include analyses of real and/or simulated data in laboratory problems which involves integrating skills from multiple courses in field courses for mapping and other field-based problem solving, using academic standard software’s that integrate multiple data sets for problem solving etc.

Translational learning activities focused on developing skills that students can apply in real world settings beyond the course. These include high value practices like oral and written communication, engaging in constructive debates, team work experience, hands-on training of field and laboratory tools etc.

Contextual learning activities that enable students to understand the role socio-cultural and physical environment dictates in applying a learned skill or practice at specific locales.

I am lucky to teach in the field of geoscience where many teaching functions including field- based courses and laboratory component present opportunities to incorporate experiential learning activities. These activities immerse student in creating their own learning and understanding and leaves them with an experience that can be applied in a job or promote deep learning.