My experiences in teaching to date have been anything but traditional. They include a couple of TA positions, field camp for non-geoscience majors, graduate student seminars, teaching high-schools students while floating through Cataract Canyon of the Colorado River (Quick! Name the type of rock that we are about to smash into!), and various efforts in my son’s elementary school classrooms.

For the past eight years, I have managed and directed several science education programs including two NSF GK-12 programs, an NSF Noyce Teacher Fellowship program, and a Masters of Science for Secondary School Teachers program. Through all this time I have organized and sat through countless teaching and pedagogy seminars, created lesson plans, taught inquiry-based methods, mentored graduate students on their teaching, lead sessions on effective communication, created teaching kits, and managed to NEVER teach a course in geology.

However, that is all about to change for me as our university is embarking in a new program in Earth Science Teaching and I am the one leading the charge. I am thrilled that I have the opportunity to participate in the Geoscience Teaching Methods workshop and learn from others that have been doing this for years. I will have my first opportunity to teach in a formal setting this fall in rocks and minerals course for teachers.

I have several goals for my career as a teacher of geoscience, some are personal goals and some are intended to affect a change in how Earth science is perceived in the Utah state educational system. Personally, I want to do what every teacher wants to do and that is to excite and engage students in Earth science. I want to learn to clearly explain difficult concepts and effectively communicate how these concepts are relevant to the world we live in. I want to engage students in minds-on, and inquiry-based activities that help them develop their own pathways to understanding and give them the tools to integrate multiple data sets to form a coherent model of Earth processes.

In Utah, Earth Science is taught in 9th grade and is considered a “default” course for those students who do not have the aptitude for biology, physics or chemistry. The teachers that teach Earth Science typically have little training in geology (you can be endorsed to teach it with just one geology class) and teach it as an “extra” to their biology and chemistry courses. Therefore, the subject is typically taught lecture-style with very little inquiry or research-based methods.

As geoscience professionals, we all understand that the methods of geoscience research are very different than those of biology or chemistry and that the standard “science-fair model” does not work well for this discipline. Teachers do not understand how to teach geoscience as a research-based science when they can’t do a repeatable experiment in a test tube. This misconception has permeated all the way up to the State Board of Regents who deny Regents Scholarships to students who take Earth science because they do not recognize it as a research-based science. Ironically, geoscience is the ultimate research-based science and requires concepts from math, chemistry, biology and physics to gain a complete understanding of Earth processes. Earth Science should be viewed as a 12th grade “capstone” course that other sciences are the prerequisite for (and, in fact, we are piloting such a course this fall). My ultimate goal, therefore, is to train teachers to teach Earth science as Earth science is done and eventually raise the bar for geoscience teaching in my geologically-gifted state of Utah.