Multiple calls for reform of foundational college STEM courses have been made in recent years. Nevertheless, change has been slow in educational institutions across the world and the impact of such reform efforts has often been limited. In this presentation, I will summarize and discuss what we have learned through educational research and the development, implementation, and evaluation of a revamped general chemistry course at the University of Arizona. This course (Chemical Thinking) seeks to create a learning environment in which students actively grapple with central ideas, engage in the analysis of relevant phenomena, develop and evaluate models of systems of interest, and generate arguments and explanations based on evidence. The course is being implemented by instructional teams comprised of a lead faculty and 10 to 20 undergraduate and graduate learning assistants working in large collaborative learning spaces with hundreds of students. I will summarize the successes and challenges that we are facing to develop equitable learning environments that foster the success of all types of students.