Much of my life is driven by a cycle of questioning, searching for an answer or answers to the questions I have and, while coming to a few conclusions, spending most of my mental energy revising my original questions and arriving at many more along the way. This questioning goes on all the time in formal academic settings as well as in day-to-day activities, and while I try to consider all questions (and possible answers) that might arise, I realize how limited I am. First, the types of questions of which I can even conceive are influenced by context and second, the more answers I consider the more questions I arrive at, but the more narrow my focus becomes as well. The latter, a paradoxical phenomenon, is at the heart of the problem of specialization. As we gain knowledge we are more able to see our place in the universe and are able to generate more questions about the knowledge that we have. In contrast, though, any knowledge we have necessarily alters our perspective and limits our ability to see things in other ways—any new knowledge we gain is automatically associated with the knowledge we already have and thus tainted by our necessarily narrow perspective. Within the academy this strange limiting of our capacity for certain types of understanding as a result of the knowledge we have is magnified as individuals strive to gain more and more knowledge about a very specific topic. On the one hand as someone studies a particular topic she better understands the topic of study and develops relevant questions to further pursue. On the other hand, through this process she shapes the lens through which she views everything and in narrowing her academic
focus, narrows her lens. She begins to approach things both within and outside her academic discipline, through the lens of her course of study. While this can lead to new and interesting perspectives, it can also lead to a narrow and arrogant approach to questions that cannot be answered by looking through a single, narrow lens.

As a student of both philosophy and science, I am always intrigued to hear a philosopher’s characterization of scientists or a scientist’s characterization of philosophers. At first I was amused by dramatized accounts and mischaracterizations of disciplines into which I had some insight—the philosopher’s rant about scientists’ assumption that they can provide all of the answers and the scientist’s reproach of philosophy for not taking any sort of practical approach to real problems. After hearing this rant from both sides over and over again though, I became angered at the arrogance of both scientists and the philosophers. I’ve found that many academics in both of these fields, as in any other, see their particular discipline and often their own work as central to answering the questions of the universe or solving the problems of society, while dismissing the work of other disciplines in which they do not have background. This problem arises at least in part due to the emphasis on specialization within the academy and the paradox that it brings. While specialists in various fields are necessary and important, in the course of such specialization individuals begin to view the world and its problems through their single lens and can fall into the trap of believing that their view of the world is more important, more useful, more relevant to the question at hand, than other views. Meanwhile, it is becoming evident that most problems cannot be dealt with well using a single, narrow approach, but that an interdisciplinary or multi-disciplinary approach is best in weighing all of the factors that need to be considered. Yet, as long as individuals in different fields
cannot recognize the legitimacy and importance of fields unlike their own, multi-disciplinary discussions about any question will be painfully difficult and slow to make progress.

Looking at global climate change as a case study for such important and complex questions it becomes evident that no single field will be able to come up with a good approach to this problem on its own. Scientific research might answer some of the questions along the way, but not only will most of these answers come with the burden of uncertainty—in pursuing any given question many more will be raised, as well. Social scientists are needed to interpret these uncertainties and weigh how they should and will play into our decisions about mitigation, adaptation, and how much, if any, further research is necessary. Yet they cannot do so without the science to shed some light (if only dim, uncertain light) on the physical aspects of the problem. In addition, humanities scholars can place the work of the physical and social sciences in the context of our human experience, and help to examine the framework within and the method by which we address such questions. To make any sort of headway on the problem, physical scientists, social scientists and humanities scholars must work together to weigh the various options regarding whether and how to deal with the problem of climate change. Yet, this will be easier said than done as long as scholars in various fields continue not only to narrow their focus, but also to dismiss their colleagues in fields unlike their own.

One obstacle to multi-disciplinary work seems to be the social scientists’ and humanities scholars’ mistrust of scientists due to a sense of overemphasis on science and its ability to answer questions. While we all look to science for answers, we can become frustrated with or suspicious of it when the answers come too fast or are too many. When
science provides us with evidence to support many different, conflicting theories (which it usually does) we are left with more questions than we had to begin and without a basis for answering the questions we hoped would be answered. This frustrating plurality of possible answers combined with idea that scientists see themselves as the keepers of the keys to the universe, those with the background and skill necessary to answer any question at hand (whether or not this really is the case), can lead non-scientists to a bitter rejection of scientific ideas and a dismissal of scientists.

This dismissal of scientists by non-scientists in academia is due in part to frustration with the modern metaphysical view of the universe as quantifiable in every way, of numbers as the ultimate reality and of analysis as the best (or even the only) approach to knowledge production and use. While postmodern scholarship recognizes that this modern view is extremely problematic, as a society, and even within the academy, we are in a transition period—while we reject much of modern theory we live in a world that was built based upon such theory. Thus we can find ourselves being pulled between a postmodern understanding of our world and modern practices that we have inherited. Many non-scientists assume that all of their contemporaries in scientific fields believe in and work with a modern view of science—science as the key to the secrets of the universe, a method that is capable of answering all questions, if only given enough time and attention. There are undoubtedly scientists who do work within this modern framework and hubristically view their work as a path to answering any question at hand. Yet, scientists are living in a post-modern academic era as well, and astute scientists recognize the limits and even the failings of science in attempting to single-handedly answer all questions. The modern picture of science is that of the Cartesian scientific method—a
method that operates within a closed system and assumes that we are able to discern unquestionable premises about the universe and move deductively from these premises to conclusions of which we are absolutely certain. While this method may be useful in addressing many questions, it is certainly a mistake to place all of our faith in the scientific method and expect to get a complete picture of the universe from within this narrow framework.

While scientists are often viewed by academics outside of their field (philosophers, social scientists, etc.) as being overconfident in their abilities to predict the future and answer questions through science, many scientists are fully aware of its limits and of the necessity for non-scientific disciplines in understanding more fully the mysteries of the universe and the human condition. Yet, the model on which scientific research is conducted is incomplete in this sense of being unable to address anything outside the closed system. It is a modern model of practice, being relied upon in a post-modern academic framework. Many climate change scientists are acutely aware of the inability of science to provide concrete answers to the complex questions of climate change. Yet the problem of how scientists are viewed by non-scientists is complicated by their need to present results as conclusive and relevant. The method by which we practice science is not one that seeks suggestions or uncertainties. We want fast and easy answers from science whenever we can get them, and thus scientists are expected to present definitive results. Therefore even when the results are not definitive they must be presented in such a way that they appear as answers to the questions at hand. Even when scientists recognize the importance thinking outside the box that is the scientific method and the modern view of science, they are constrained by the method.
If we are going to deal with this disconnect between the modern method that we use to practice science and our post-modern understanding of the non-linearities, the probabilistic nature and the limits of science, we must respond to the shifting paradigm by shifting our approach to scientific questions. I don’t think that this means we must necessarily abandon the scientific method as we know it, but I do think it means that we must do something to acknowledge its limits and its failings, not only after the fact, from outside the box, but within the system as well. Recognizing and acknowledging the limits of science involves more than simply displaying error bars on data plots. Such acknowledgement requires that we see the process that currently dominates all of science as simply a part of the process and that we attempt to broaden our narrow lenses. This broadening can start through the education of a new breed of scholars who are aware of the paradox of specialization and work to curb their own inevitable narrowness by recognizing the importance of fields outside their own. Again, this is easier said than done considering our human limits and the inevitable narrowing of our lenses as we study one topic in depth. If scholars in many fields recognize and acknowledge the importance of interdisciplinary and multi-disciplinary work, though, we can begin to bridge the gap between how specialists see the world and how we must approach it to truly understand it through many lenses.