

1067-T1-2223 **Sheila K. Miller*** (sheila.miller@colorado.edu), 646 Swift Road, West Point, NY 10996. *On the Value of Doubt and Discomfort.*

To present mathematics as completely devoid of any of its relevant philosophical issues is to detach it from one of its principal sources of power to captivate and persuade. Deep learning is uncomfortable; when something causes us to question a belief we hold about the universe, our minds struggle and shift to find resolution. Many students come to college convinced that mathematics is a static subject safe from doubt and uncertainty. One gateway to an improved understanding of the field of mathematics is the discovery that there is a difference between truth and provability. These notions are definable in any course (with varying degrees of rigor), and the reality that there are limits to what can be known mathematically can be shocking, unsettling, and compelling. This talk will address how and why I discuss Gödel's Incompleteness Theorems and Cantor's Diagonalization argument in every course I teach. (Received September 22, 2010)