The era of precision cosmology revealed that 80% of the matter in the universe is non-luminous, or dark. The nature of dark matter is crucial to our understanding of the structure and evolution of the universe after the big bang. One promising dark matter candidate, motivated by both particle- and astrophysics, is the Weakly Interacting Massive Particle (WIMP). The detection of this elusive particle requires a multi-pronged approach. I will present results from searches for WIMPs using high-energy gamma-rays from the Fermi Gamma-Ray Space Telescope. I will also discuss complementary detection techniques and their necessity for dark matter discovery. Although no WIMP has yet been found, I will discuss what is ruled out so far, current ongoing searches, and our best prospects for finding the source of the universe’s missing mass.