A wide range of organisms – such as nematodes, sea anemones, and bacteria – possess immune defenses to protect themselves against infectious microbes and viruses. Yet studying the interactions between hosts and infectious microbes remains limited to a handful of species. Dr. Katherine Deets will expand this list by examining the interactions between Tetrahymena thermophila and viruses in Dr. Nels Elde’s lab at the University of Utah. Dr. Deets is currently identifying novel viruses that infect Tetrahymena, and working to understand how Tetrahymena defend themselves against these viruses. This research will unlock a new experimental platform with powerful genetic tools for diversifying studies of the evolution of host-virus interactions.

As a graduate student, Deets investigated host-microbe interactions in the context of the mouse small intestine in Dr. Russell Vance’s lab at the University of California, Berkeley. Dr. Deets discovered a novel mode of antigen presentation that only occurs following inflammasome activation. This finding revealed a new connection between innate and adaptive immunity in the intestine. Dr. Deets will use her experience in host-microbe interactions to expand our understanding of immune defense in diverse.