

**Topic:** Evolution and epigenetics: genomic imprinting in mammals and stochastic switching in bacteria

**Speaker:** Jeremy Van Cleve, Santa Fe Institute

**Time:** Tuesday, March 30, 3:30 pm (refreshments at 3)

**Location:** NIMBioS Lecture Hall on the 4th floor of 1534 White Ave

**Abstract:** As empirical work in epigenetics advances at a rapid pace, evolutionary biologists have worked to elucidate the evolutionary implications of these discoveries. In this talk, I will review recent theoretical work on two phenomena with epigenetic underpinnings: genomic imprinting in mammals and stochastic switching in bacteria. Building on the dominant theory for the evolution of genomic imprinting, the kinship theory, I will show how demographic factors including sex biases in survival and migration, biased sex ratios, and generation overlap can drive the evolution of imprinting in surprising directions. In bacteria, random switching between alternative phenotypes that are heritable due to epigenetic factors has been seen as a way that bacteria can survive in uncertain environments. I will show that relaxing an important simplifying assumption in the classic theory suggests that stochastic switching may not be as easy to evolve as previously thought.