Many complex dynamical systems are subject to uncertainty in the initial data, chaotic internal mixing, and unresolved interactions with an environment. For these reasons a statistical perspective is often taken: trajectories are treated as tools for computing averages with respect to a generalized Gibbs measure (a smooth function of the energy). I will discuss a variety of methods for performing such calculations based on stochastic differential equations. I will also discuss and compare some numerical methods for Gibbs sampling.