Since the turn of the century, a new scientific field has started to emerge: Network Science is an interdisciplinary field that focuses on the systematic study of interactions in complex systems. For example, in systems biology the concept of a gene network is a central one, describing the idea of the stability and interconnectedness of molecular reactions. Although there are many statistical techniques that deal with networks, many of them are defined for small systems, not the type that one would encounter in e.g. genomics. In this lecture, we present a number of new approaches to address scientific questions arising in the study of connected systems.