The divisor theory of graphs views a finite connected graph $G$ as a discrete version of a Riemann surface. As in the case of Riemann surfaces, we are interested in the complete linear system $-D$ of a divisor $D$—the collection of nonnegative divisors linearly equivalent (via the discrete Laplacian) to $D$. Unlike the case of Riemann surfaces, the complete linear system of a divisor on a graph is always finite. In this talk, I will discuss methods to characterize and count all complete linear systems on $G$. I will then present a generalization of these results in the context of chip-firing on $\mathcal{M}$-matrices. This is joint work with Forrest Glebe and David Perkinson. (Received February 02, 2019)