In this talk we will introduce the discrete Laplacian. The discrete Laplacian is a matrix associated with a graph. We will derive the discrete Laplacian in a natural way using ideas from vector calculus. We will also present an application of the discrete Laplacian to edge cuts of a graph.

The talk is suited for anyone familiar with multivariable calculus and elementary linear algebra. Specifically, the presentation will assume that the audience is familiar with matrix multiplication, the dot product, the transpose of a matrix, the gradient of a function, the divergence of a function, and the Laplacian of a function.