

1023-F5-1080 **Michael E. Orrison***, Department of Mathematics, Harvey Mudd College, Claremont, CA
91711. *Using the Complex Spectral Theorem to Introduce the Discrete Fourier Transform.*

In this talk, I will describe how in my linear algebra course we apply the Complex Spectral Theorem to the cyclic shift operator to construct the classical discrete Fourier transform, or DFT. This is a particularly enjoyable part of the course because we not only introduce the DFT in a natural way, but we also end up using several major ideas from linear algebra, including eigenvalues, inner products, and orthonormal bases. (Received September 25, 2006)