

ECE/Math 430 – Fourier and Wavelet Analysis and Applications

INPUT



Calculus

Vectors and dot products

Complex numbers

Concepts:

Fourier series

- the Fourier transform and its properties
- the discrete Fourier transform and its properties
- Fourier transforms on various function spaces, including
 - L^1 , L^2 , and tempered distributions

Sampling

Uncertainty relations

Poisson formula, and aliasing

Relationships between the transforms

The continuous wavelet transform and its inverses

Multiresolution analysis

The discrete wavelet transform and its inverse

OUTPUT



Can use Fourier methods to analyze frequency content of signals

Is comfortable with the notion of functions being vectors in a vector space

Understands the basics of distribution theory

Can use Matlab FFT and iFFT

Can use Matlab wavelet transform