The Fourier transform as an operator on $L^2$, $L^1$ and tempered distributions

• Interpolation

• Fractional integration and Sobolev inequalities

• Singular integrals on $L^p$

• Littlewood Paley theory

• Oscillatory integrals

• Asymptotics of Bessel functions

• Restriction theorems for the sphere

• Uniform Sobolev inequalities

• Inverse problems—the theorem of Sylvester and Uhlmann

The material will be taken from the books by Stein: Singular integrals, and Harmonic analysis, and Stein and Weiss Introduction to Fourier analysis on Euclidean Spaces. The last two topics are covered in the articles:


I do not plan to use a text, but will prepare lecture notes.

January 5, 2001