1067-42-341 **Ryan M Berndt*** (rberndt@ottterbein.edu), 1 South Grove Street, Otterbein University, Westerville, OH 43081. *Two weight problem for the Fourier transform.* Preliminary report.

The two weight problem for the Fourier transform consists of finding necessary and/or sufficient conditions on functions u and v such that $\left(\int |f|^q u\right)^{1/q} \leq C \left(\int |f|^p v\right)^{1/p}$ for all $f \in F$. We show that by varying the space of functions F and exploiting the natural dilation and translation invariance of the inequality, we are able to find interesting conditions on u and v that dovetail nicely with the existing literature. (Received August 24, 2010)