# Math 524

Homework due 11/20/02

**Reading:** Sections 2 and 3 Chapter 2 in Folland.

**Problem 1.** Let $(X, \mathcal{M}, \mu)$ be a measure space. Let $f \in L^+$ be such that $\int f\, d\mu < \infty$. Prove that given $\epsilon > 0$ there is $\delta > 0$ such that

$$\int_E f\, d\mu < \epsilon \quad \text{whenever} \quad \mu(E) < \delta$$

**Problems from Folland:**

Chapter 2, Section 2: problems 13, 14, 15, 16.
Chapter 2, Section 3: problems 18, 19, 20, 21, 27, 28 (a-c).