# Bus Ad 239B–Spring 2003
# Problem Set 13
# Due Thursday May 8

Suppose $X$ is a Poisson process with parameter $\rho$.

1. Show that $\hat{X}(t) = X(t) - \rho t$ is a martingale on the filtration $\mathcal{F}^X$ generated by $X$.

2. Suppose that there is a standard Wiener Process $W$ such that $X$ is adapted to the filtration $\mathcal{F}^W$ generated by $W$.

   (a) Can $\hat{X}$ be a martingale with respect to $\mathcal{F}^W$?

   (b) Can $e^{X+W}$ be the market price of a traded security, if a Money-Market Account is also present?