We study Schrödinger operators of the form $-\Delta_R + q(x)$, $x \in \mathbb{R}^3$, where the potential $q$ is the sum of a deterministic part $q_0$, and a random part $q_1$ that varies on a scale of order $N^{-1} \ll 1$. Such operators provide models for the diffusion of waves inside chaotic systems with small scale of heterogeneity. We prove that the eigenvalues (and the resonances) of $-\Delta + q$ converge to the eigenvalues (and the resonances) of $-\Delta + q_0$ in the limit $N \to \infty$. In the case of simple eigenvalues, we give a formula for the remainder term, which can be either deterministic or random, depending on the behavior of $\hat{q}_1(\xi)$ near $\xi = 0$. (Received February 15, 2017)