Pricing a path-dependent financial derivative, such as an Asian option, requires the computation of $E[g(B(\cdot))]$, the expectation of a payoff functional, $g$, of a Brownian motion, $(B(t))_{t=0}^T$. The expectation is an infinite-dimensional integration which is approximated by the sample average of a $d-$dimensional approximation to the Brownian motion. In this talk, a multilevel algorithm with low discrepancy designs is used to improve the convergence rate of the worst case error. The paper investigates the worst case error as a function of each level $l$’s sample size, $n_l$, and truncated dimension, $d_l$, for payoff functionals that arise from certain Hilbert spaces with moderate smoothness. If the error in approximating an infinite dimensional expectation by a $d-$dimensional integral is $O(d^{-q})$, and the error for approximating a $d-$dimensional integral is $O(n^{-p})$, independent of $d$, then it is shown that the error in computing the infinite dimensional expectation may be as small as $O(N^{-\min(p,q)})$ for a well-chosen multilevel algorithm, where $N$ is the cost of the algorithm defined as $N = n_1d_1 + \cdots + n_Ld_L$. Numerical experiments in computational finance will be presented. (Received September 08, 2009)