The linear instabilities of a DIII-D H-mode edge pedestal profile [1] are studied with gyrokinetic particle-in-cell simulations. The simulation code GEM is an electromagnetic delta-f code with global tokamak geometry inside the separatrix. In fluxtube simulations we have identified a kinetic ballooning mode (KBM) like instability at the normalized radius $\rho_N=0.965$, which is close to the pedestal top. The critical $\beta$ of this KBM is around 0.9%. In global simulations of the pedestal, however, the dominant instability seems to be a drift wave in the steep gradient region propagating along the electron diamagnetic direction. The effects of $E_r$ and $\beta$ are also studied.