This research investigates photoionization models of the Narrow Line Region (NLR) of Seyfert galaxies and Low-Ionization Nuclear Emitting Region (LINER) galaxies with the use of the astrophysical code CLOUDY. One of the shortcomings of past photoionization models of the NLR is the inability to reproduce the uniformity in emission line ratios that researchers have observed without introducing arbitrary assumptions. Groves et a. 2004 attempted to resolve this issue through introducing dusty, radiation pressure-dominated photoionization models of AGN. However, this model assumed a simple power law relation between the Spectral Energy Distribution (SED) and frequency. Grupe et al. 2010 found a correlation between αuv and αx, and by constraining αuv as a function of αx we elop a photoionization model for the ionizing spectrum of a typical Seyfert Narrow Line Region. Our model is based on a double broken power law determined by Ferland et al. 2013, where we assigned initial values for our spectral indices on the average of data collected in Grupe et al. 2010. To check the validity of our model [Which model? This seems to argue to correlation in the previous sentence is model dependent] , simulations were run across blackbody accretion disk temperatures ranging from 10­­4 K to 107 K while varying hydrogen density, photon flux, and elemental abundance of clouds in the NLR. The emission lines produced by these simulations were plotted using standard diagnostic diagrams and compared to galactic emission line data obtained from the Sloan Digital Sky Survey. Our model produces emission lines without significant variation between simulations with αx = 1.42, 1.17, and 2.19, except with regard to [O I] 6300/Hα, where our simulated emissions started to fall on the boundary between Seyferts and LINERs. This leads us to examine the ability of our photoionization model to create emission line spectra that are typical of LINERs, as debate still continues over the primary excitation mechanism for LINERs.