Renormalizing a quantum field theory induces scale dependence in the coupling. In the case of QCD, the theory exhibits asymptotic freedom: the coupling constant becomes small at high energies $\mu >> \Lambda_{QCD}$, but strong at low energies $\mu \lesssim \Lambda_{QCD} \sim 250MeV$ - causing perturbation theory to break down. Although a typical QFT text approaches this topic in the context of perturbation theory, $\Lambda_{QCD}^{\overline{MS}}$ is a valid nonperturbative entity and α_s may be studied with nonperturbative methods.

In this talk I first introduce the theory of strong interactions and it's renormalization in perturbation theory. I then discuss QCD's intrinsic scale Λ_{QCD} beyond perturbation theory and comment on how to make contact with "perturbative schemes" (e.g. $\overline{MS}$). A very brief introduction to the lattice follows. Finally we arrive at the heart of the matter, an algorithm to solve the renormalization group equations via successive scale setting in a finite volume simulation.