1022-05-44 **H. A. Kierstead** and **A. V. Kostochka*** (kostochk@math.uiuc.edu), 1409 W. Green St., Urbana, IL 61801. *Equitable colorings of sparse graphs.* Preliminary report.

In several applications of coloring as a partition problem there is an additional requirement that color classes be not so large or be of approximately the same size. A model imposing such a requirement is equitable coloring - a proper coloring such that color classes differ in size by at most one. A classical result on equitable colorings is the Hajnal-Szemerédi Theorem stating that every graph with maximum degree at most r is equitably $(r+1)$-colorable. We give a simple proof of this result and prove the following its extension conjectured recently by Kostochka and Yu: *If for every edge xy of a graph G the sum of degrees of x and y is at most $2r+1$, then G is equitably $(r+1)$-colorable.* (Received September 05, 2006)