

**Problem Set #1****Due Thursday January 22, 2009**

1. The first homework problem in nearly every Galaxies course is to acquaint you with the variety of galaxy types by visually examining images. The main goal of this assignment is to give you a qualitative picture of (mostly nearby) galaxies.

**Part A -- Old School:** There are several galaxy catalogs available on reserve in the astronomy library (Gibbs 2nd Floor). Page through the three references below:

“The Hubble Atlas” -- Sandage (1961)

“The Carnegie Atlas of Galaxies” -- Sandage & Bedke (1994)

“Catalog of Peculiar Galaxies” Arp (1966) [in blue box]

**Part B -- New School:** The Sloan Digital Sky Survey (SDSS) has fundamentally changed how we view and analyze galaxies. Galaxy studies have moved from samples of a few hundred to a few hundred thousand objects, allowing far more quantitative and statistical analysis. However, it is still crucial to look at individual images! First page through SDSS images of the Third Reference Catalogue of Bright Galaxies (RC3):

<http://cosmo.nyu.edu/hogg/rc3/>

Then, page through more ‘typical’ SDSS galaxy images at the Galaxy Zoo. The image will randomly update by repeatedly clicking ‘Galaxy Analysis’ either in the top or side bar:

<http://www.galaxyzoo.org/GalaxyAnalysis.aspx>

**Assignment:** Choose two galaxies in the RC3 catalog with different morphologies. Find the published galaxy classification from two different sources and describe on what features the classification is based. Find and compare the photographic (Carnegie Atlas) and digital (SDSS) images of your galaxies. Would you classify these objects differently based on the two images? Please print a version of each galaxy to turn in with your write-up.