

## Problem Set 0. Not to be turned in.

This assignment gives some background reading to prepare you for thinking about cosmological models. Problem Set 1 will have problems to hand in. It will be posted by Tuesday, September 11, and due in class one week later.

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1. Browse the links in the Readings section to find what is there. Be sure you know how to download a paper posted to astro-ph. Similarly, be sure you know how to find an astrophysics publication using THE NASA ASTROPHYSICS DATA SYSTEM (<http://adswww.harvard.edu/>). Test yourself by finding an article published in 1998 by Zaldarriaga, Seljak, and myself. (It gives an advanced treatment of cosmic microwave background anisotropies - it isn't meant to be read in this course!)
2. If you have any personal favorite cosmology web pages that aren't listed at the 8.942 readings page, please email me so that I may add them to the links page.
3. Read the excellent non-technical synopsis of modern physical cosmology prepared for the National Academy of Sciences, *Cosmology: A Research Briefing* (<http://books.nap.edu/html/cosmology/>). While reading, keep in mind the Cosmological Principle, an assumption that the Universe is smooth (homogeneous and isotropic) on large scales. Clearly the universe is strongly inhomogeneous on small scales; the closure density is about 30 orders of magnitude less dense than the earth. How might this be compatible with the assumptions underlying standard cosmology?

Read the light overview of cosmology by Michael Turner, "A Sober Assessment of Cosmology at the New Millenium", *PASP*, 113, 653 (2001), available at THE NASA ASTROPHYSICS DATA SYSTEM (<http://adswww.harvard.edu/>) and in preprint form at astro-ph/0102057 (<http://arxiv.org/abs/astro-ph/0102057>).

4. Skim the thorough article "Final Results from the Hubble Space Telescope Key Project to Measure the Hubble Constant", *ApJ*, 553, 47 (2001), available at THE NASA ASTROPHYSICS DATA SYSTEM (<http://adswww.harvard.edu/>) and in preprint form at astro-ph/0012376 (<http://xxx.lanl.gov/abs/astro-ph/0012376>).
5. Review Peacock chapters 1 and 2 in preparation for our foray into relativistic cosmological models starting Thursday, September 13.