Astronomy 82
Final Exam Review Sheet
For the Final Exam on Tuesday, 2008/06/10

Midterm Review Thursday, June 5 at 5:30 PM
in PAB 3rd floor conference room

Here's a list of topics we've covered in class so far, as generated by you all. If you can cogently address all these issues, you should be A-OK for the midterm.

1. First midterm material:
    a. Basic introductory material
    b. Solar systems, near and far
    c. Our sun
    d. Fusion and stellar properties
    e. Stellar Evolution
2. Second midterm material:
    a. Variable Stars
    b. Compact Stars
    c. Eruptive Variable Stars
    d. Interstellar Medium
    e. Star Clusters and Associations
    f. The Milky Way

3. Galaxies
    a. What are the different types of galaxies, and how do they differ in shape, brightness, age, etc? What different quantities can we measure in some types of galaxies, but not in others?
    b.
    c. How do observed galactic rotation curves differ from initial expectations? What is the suggested explanation for this?
    d. What is the concept of "morphological segregation?" Why is this observed?
    e. Which galaxies are more common in clusters? Why is this probably the case?
    f. What are "active galactic nuclei," and what powers these powerful extragalactic engines?
    g. What is an "accretion rate," and how does it relate to AGN?
    h. What are "starburst galaxies," and how do astronomers think they come about?
4. Cosmology
    a. What does "Hubble's Law" imply about the universe? How is it used?
    b. In words, describe the universal "scale factor" and how it relates to quantities

such as the Hubble constant or redshift.

c. Be able to calculate a redshift from a velocity (and vice versa).
d. What determines the eventual fate of the universe, and how?
e. How does the density of matter in the universe relate to the geometry of space-time? What does this have to do with the eventual fate of the universe? Why?
f. Describe some of the hypotheses as to the nature of dark matter. What are its observed effects, on galactic and extragalactic scales?
g. What is "dark energy," and how are its effects observed?

5. Problem-solving
    a. Do the easy stuff first!
    b. Any past homework problem is fair game. Go back and look them all over... practice any problems you are uncertain about!