Resources available
A] [http://www.astro.umd.edu/~ssm/ASTR100/](http://www.astro.umd.edu/~ssm/ASTR100/) has some useful links.
B] **Read the book!** Try the problems at the end of each chapter.
C] Email me if you have a specific question I could answer online.
D] Come to Wednesday office hours if you need general help/review.

**Chapter 5: Light**

1] What type of EM radiation has the longest wavelength?

2] What type of EM radiation has the highest frequency?

3] What color of visible light has the most energy? _______ Why? ________________

4] Name the four ways light interacts with matter: ________, ________, ________, ________.

5] What type of spectrum will a neon light produce? ____________________________

6] What type of spectrum will a regular filament light bulb produce? ________________

7] What type of spectrum will a star produce? ________________________________

8] Why do atoms absorb/emit only certain values of energy? ____________________________

9] If you double a star's radius and change nothing else, by how much will its luminosity increase? (Use ratios and Stefan-Boltzmann Law) ________________________________

10] If a star has twice the peak wavelength of emission as our Sun, is it hotter or colder at the surface? By how much? (Use Wien's Law) ________________________________

11] If a star's spectrum is blue shifted, is it moving towards or away from us? ________

12] What does a reflecting telescope look like? How about a refracting one? (Sketch:)

   (Reflecting:)

   (Refracting:)

13] Name three advantages of putting a telescope in space. ______________________, ______________________, and ______________________.

14] For the same size telescope, which has a better angular resolution: a telescope that picks up infrared or one that picks up ultraviolet? ($\theta \propto \lambda/D$) ________________________________
Chapter 6: The Solar System
1] Pages 146-155 have one planet per page. How far from the Sun is Neptune? _______
2] What are some clues that help us figure out how the Solar System formed? (Page 157 may prove useful) ________________________________
3] List these in order from closest to furthest from the Sun: Kuiper belt, asteroid belt, jovian planets, Oort Cloud, terrestrial planets. ____________________________________________
4] Describe the Solar Nebula hypothesis: ____________________________________________
5] How do we find extrasolar planets? Name some techniques (See pages 175-177): ________________________________

Chapter 7: Earth and Terrestrial Worlds
1] There are four main factors that affect surfaces. Name them: __________, __________, __________, __________. Which of these are found on Venus? __________
2] Name some unique features of Earth that support life (Page 216 is helpful). ______________
3] Describe the CO₂ cycle on Earth: ____________________________________________

Chapter 8: Jovian Planets
1] What are Saturn and Uranus primarily made from? ________________________________
3] What causes Io to heat up enough to be volcanically active? _____________________
4] Which planets have rings, and what are they made of? __________________________

Chapter 9: Asteroids and Comets
1] Where are comets typically found? ____________________________________________
2] Describe the difference between a meteor, a meteorite, and a meteoroid: __________
3] There are two tails on a comet. What are they made out of, and which always points DIRECTLY away from the Sun? ____________________________________________
4] Name three famous/important examples of impacts in the Solar System and where they occurred (Hint: catastrophic events are a good place to start) ________________________________
Chapter 10: The Sun
1] Google the song “Why does the Sun Shine?” by They Might Be Giants. The lyrics are catchy and pretty accurate. Maybe they could help on the exam!
2] The visible “surface” of the Sun is called the ___________________.
3] Describe the steps of the proton-proton chain below (should be covered in class on Tuesday):

4] What happens to the Sun's magnetic field every 11 years? ___________________

Chapter 11: Stars
1] Suppose we know two stars have the SAME luminosity, but one looks four times brighter than the other. How much closer is it? (Use the inverse-square law and ratios):

______________________________________________________________________

2] Which is hotter, our Sun or a Red Giant? _____________________________
3] Know the Hertzsprung-Russell Diagram well. There will likely be a free response question asking about many details regarding it. (P. 319)
4] What spectral class is the Sun? ___________________________
5] What color are K and M stars? ___________________________
6] What spectral class of stars has the shortest lifespan? _________________
7] Along the main sequence, where are the highest-mass stars found? _________________
8] Describe the statement “Mass is destiny.” ________________