ASTRONOMY 252
Assignment 2 Spring 2010

SPECTRAL LINES IN STARS

GOALS:
Appreciate that different elements produce different absorption and emission spectra.
Understand the different spectra based upon the Bohr model of the atom.
Understand the different strength of absorption lines based on the Boltzmann and Saha equations.
Learn how the spectra of stars are classified into different types.
Become familiar with the Hertzsprung-Russell diagram and what can be learned from it.
Learn how to find the distance for a star (indirectly) based upon its spectrum.

DUE:
2a. Q 1-3: Monday, Jan 25, 2010 (by 4 pm)
2b. Q 4-8: Monday, Feb 01, 2010 (by 4 pm)

READ: Chapters 3

HOMEWORK: (Sign the honor code at the end)

IMPORTANT: Show your work for all of the problems, and lay out the work neatly

1. 3.1 [transitional wavelengths]
2. 3.3 [ionization energy]
3. 3.6 [transitional wavelength for He]
4. 3.10 [Boltzmann eqn]
5. 3.12 [excitation temperature]
6. 3.14 [kinetic temperature]
7. 3.17 [H-R diagram]
8. 3.19 [H-R diagram]

Review/help sessions:
- Friday, Jan 22, 2:00-3:00 pm – SP2 (spectra) or Assign 2a
- Monday, Jan 25, 1:00-2:00 pm or just come to my office and see if I am available;
  (I will be in a meeting 2:00-3:30 pm)
- Friday, Jan 29, 2:00-3:00 pm – SP2 (spectra) or Assign 2b
- Monday, Feb 01, 1:00-2:00 pm or just come to my office and see if I am available.

Video (with popcorn): Tuesday, Jan 26, 11:00-11:30 am