Electron Configurations

• Electrons are arranged around the nucleus in a regular order. The first electrons fill the energy sublevel closest to the nucleus.

• Electrons continue filling each sublevel until it is full and start filling the next closest sublevel.

• A partial list of sublevels in order of increasing energy is:

  ➢ 1s < 2s < 2p < 3s < 3p < 4s < 3d < 4p < 5s < 4d …
Writing Electron Configurations

• First, determine how many electrons are in the atom. Iron (Fe) has 26 electrons.

• Arrange the energy sublevels according to increasing energy:
  
  – $1s\ 2s\ 2p\ 3s\ 3p\ 4s\ 3d\ ...$

• Fill each sublevel with electrons until you have used all the electrons in the atom:
  
  – Fe: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^6$

• The sum of the superscripts equals the atomic number of iron (26)
Blocks and Sublevels

- We can use the periodic table to predict which sublevel is being filled by a particular element.
• This figure shows the first ionization trend for all elements
Assigned Readings

Chapter 4 – Section 4.7 (Pages 108-111)

Chapter 9 – Section 9.6 – 9.9 (Pages 295 – 312) (In Section 9.6, ignore shapes of orbitals and orbital diagrams)

End of Chapter Problems:

Chapter 4 – 81, 83, 85

Chapter 9 – 23, 25, 27, 45, 49, 53, 55, 57, 61, 63, 67, 73, 75, 77, 81, 85, 89, 93,