 BIOL 101
Cell Division

I. Bacterial Cell Division
   A. DNA copied
      1. double helix begins to unzip at one point
      2. new double helix formed on each naked strand

   B. Binary fission
      1. cell is constricted into 2
      2. leaves 2 daughter cells

II. Eukaryotic Cell Division
   A. Somatic cells are formed by mitosis

   B. Chromosomes
      1.
      2.
      3. histone proteins
         a. (+) charge
         b. “spools”
      4. homologues

   C. Cell Cycle
      1. daughter cells continue to divide
      2. genetic information passed on
      3. 2 major phases
         a.
         b.

   D. Interphase
      1. non-dividing
      2. “normal activities”

      3. 3 phases
         a.
         b.
         c.

III. Mitosis (M phase)
A. Nucleus divides, forming two daughter nuclei

B. Chromatids
   1. duplicated chromosomes, joined by a centromere
   2. 2 chromatids of a chromosome contain identical DNA
   3. each chromatid will be a chromosome in a daughter cell

C. Prophase
   1. begins mitosis
   2. nuclear membrane and nucleoli:
      3. chromosomes (chromatids) tightly coiled
   4. centrioles migrate
   5. spindle fibers produced

D. Metaphase
   1. orderly alignment
   2. equatorial
   3. microtubules radiate from centromeres to centrioles

E. Anaphase
   1. centromeres split (replicate)
   2. chromatids now physically separated (chromosomes)
   3. separated chromosomes migrate
   4. shortening of spindle fibers
   5. each pole of the cell receives _______ chromosomes

F. Telophase
   1. final stage
   2. reversal of prophase
      a. 
      b. 
      c. 
   3. end result:
G. Cytokinesis
   1. often begins during anaphase
   2. cleavage furrow “outside-in”
   3. cell plate “inside-out”