# Outline for March 13, 2006

*Reading*: text, §15.4, 26.3–26.3.2.1, 22.1–22.2

1. Greetings and felicitations!
   a. Puzzle of the day
2. MULTICS ring mechanism
   a. MULTICS rings: used for both data and procedures; rights are REWA
   b. $(b_1, b_2)$ access bracket–can access freely; $(b_3, b_4)$ call bracket–can call segment through gate; so if *a*'s access bracket is (32,35) and its call bracket is (36,39), then assuming permission mode (REWA) allows access, a procedure in:
      rings 0-31: can access *a*, but ring-crossing fault occurs
      rings 32-35: can access *a*, no ring-crossing fault
      rings 36-39: can access *a*, provided a valid gate is used as an entry point
      rings 40-63: cannot access *a*
   c. If the procedure is accessing a data segment *d*, no call bracket allowed; given the above, assuming permission mode (REWA) allows access, a procedure in:
      rings 0-32: can access *d*
      rings 33-35: can access *d*, but cannot write to it (W or A)
      rings 36-63: cannot access *d*
3. Firewalls
   a. Filtering vs. proxy
   b. Access control mechanism
   c. DMZ, and inner and outer firewalls
4. Malicious logic
   a. Quickly review Trojan horses, viruses, bacteria; include animal and Thompson's compiler trick