A. Characteristics of the phylum Platyhelminthes
   1. Flattened dorsoventrally
   2. Without true body segmentation
   4. Acoelomate (Lack a cavity around body organs)
   5. Without the following systems
      a. Skeletal
      b. Circulatory
      c. Respiratory
   6. Reproduction
      a. Most are MONOECIOUS (= hermaphroditic)
         [MONO = 1; OIKOS = house]
      b. A few are DIOECIOUS (= sexes separate)

B. Class Turbellaria (pp 199-208)
   1. Characteristics of the Turbellaria
      a. Epidermis with cilia
      b. Incomplete digestive tract
         (1) With a mouth and a PHARYNX
         (2) Without an anus
   2. Examples
      a. Dugesia (= Planaria) is free-living
      b. Bdelloura
         (1) Ectocommensal
         (2) Book gills of horseshoe crabs

Slides (2): Turbellaria, Bdelloura, Commensal on bookgills of horseshoe crabs

C. Class Monogenea (Chapter 19)
   1. Monogenetic flukes
   2. Characteristics
      a. Epidermis without cilia
      b. Feed on host blood
      c. Direct Life-cycle (= no intermediate hosts)
      d. Hermaphroditic, but do not fertilize their own eggs
   3. Where are they found?
      a. On gills & scales of fish (ectoparasites)
      b. In body cavities that have openings to the outside of frogs, salamanders and turtles
         (1) Mouth
         (2) Gills
         (3) Urinary bladder
   4. Taxonomy based upon attachment organs
      a. OPISTHAPTOR [OPISTHO = behind; HAPTOS = join, fasten to]
         (1) Large attachment organ containing suckers
         (2) Posterior location
      b. PROHAPTOR: [PRO = before; in front of] anterior attachment organ
Slide: Monogenea. *Gyrodactylus*
5. *Gyrodactylus* species (pp. 303-304; Fig 19.14)
   a. Important pests of trout, bluegills and goldfish in fish ponds
   b. VIVIPAROUS [VITA = life; PARITUS = bring forth] (= live birth)
      (1) Parasites are adult at birth
      (2) Offspring developing in uterus of parent has in its uterus
           another developing embryo which, in turn, may carry
           another embryo.
      (3) Exponential population growth
Slide: Figure 19.14 Generalized anatomy of a viviparous *Gyrodactylus* species
6. *Polystoma* species (pp. 304-305; Fig. 19.15)
   a. Parasitize urinary bladders of Old World frogs
   b. Opisthaptor has suckers as well as hooks
   c. Reproductive cycle synchronized with host hormones
Slide: Monogenea, *Rajonchocotyle*
Slide Figure 19.15 *Polystoma integerrimum*, a parasite of Old World frogs
7. Monogeans as a supporting example of the “Enemy Release Hypothesis”
   [=ERH’]
   a. Definitions
      (1) An INTRODUCED, NON-ENDEMIC. or EXOTIC species
          is one that usually as a result of human activity has been
          transplanted to an ecosystem in which it has not been
          historically found.
      (2) An INVASIVE species outcompetes native species and
          disrupts historical ecological balances and interactions
   b. ERH = One explanation for why an introduced species becomes
      invasive is that there are no natural predators or parasites of the
      invasive in the new habitat.
Word Slide: “Spreading Lionfish Invasion Threatens Bahamas” [Mark] Hixon...[is] also studying native
lionfish in the Pacific Ocean to understand what keeps their populations in check. Parasites could be one
limiting factor. Zoologist Paul Sikkel peers through a microscope at the gills of one of the lionfish Hixon's
team has just caught. "Wow! Just so clean," Sikkel exclaims. "There's nothing in there. Have a look. A
local fish, you’d see a bunch of really small worms [= monogeneans] on those red gill filaments. And they
squirm, so it's easy to pick them out. But there's nothing on there." The parasites that would be swarming
over a local fish aren't going near the lionfish. Sikkel says that might be one secret to the invasion. "If you
consider parasites a sort of a tax that fish have to pay, a lot of their energy gets diverted into parasites, and
so a fish that doesn't have those [parasites] can develop more of its energy into its own growth and
D. Class Trematoda
1. Subclass Aspidobothrea (Chapter 14)
   a. Have a huge attachment organ
   b. *Cotylaspis*
      (1) Turtles
      (2) Freshwater mollusks
Slides (2): Aspidobothrea, *Cotylaspis*
Slide: Aspidobothrea, *Aspidogaster* in cross-section
2. Subclass Digenea
E. Class Cestoidea (= Tapeworms)