

6. Phylum ANNELIDA ("ringed")

Every worm has its hole. –Yiddish proverb

MAJOR TAXA	Chaetae
Ph. Annelida (12,400 spp.)	Metameric segmentation
Cl. Polychaeta (8000 spp.)	Cephalization
(many families!, including F.	Blood/vascular system (hemocoel)
Siboglinidae)	Metanephridial excretory system
Cl. Clitellata	Parapodia
Subcl. Oligochaeta ("earthworms")	Ventral nervous system
Subcl. Hirudinea ("leeches")	Development of coelomic septae
Cl. Echiura	Gas-permeable cuticle
Cl. Sipuncula (new!)	Sinusoidal and peristaltic locomotion
MAJOR THEMES	Trophosome

Recap: nematodes, an ecdysozoan "pseudocoelmate"

TOP TEN areas to explore and appreciate about polychaete annelids

10. Body plan: metameric segmentation, serial repetition of parts, coelomic compartments
9. Secretion of a protective and gas-permeable cuticle
8. "Complete" gut provides one-way flow and some regional specialization
7. Cephalization: concentration of sensory structures and ganglia
6. Layout of the nervous system includes ventral nerve cords and segmental ganglia
5. Parapodia: roles in locomotion, ventilation, food capture, respiration
4. Role of partitioned coelomic spaces in distribution, excretion, reproduction, and locomotion
3. Excretion: coordination of contractile blood-vascular system, coelom, and metanephridia
2. Head structures, parapodia, and segmentation greatly diversified for different lifestyles
1. Polychaete lifestyles: diversification of head structures, parapodia, and segments

GOALS

After studying from lecture notes and the associated reading, you should be able to:

- Describe features that distinguish annelids from flatworms and nemertean
- Describe metameric segmentation and the layout of the coelom in polychaete annelids
- Describe the developmental process that leads to the formation of serially repeated segments
- Describe several functions of parapodia and name the annelid classes that have them
- Describe the layout of the polychaete circulatory system, including the formation and location of major blood vessels and patterns of circulation within and between segments
- Describe the layout of the generalized annelid nervous system
- Name and explain both steps in the operation of a metanephridium
- Explain why circulatory systems and nephridial systems are related in vermiform phyla
- Describe how parapodia, muscles, and coelomic compartments are coordinated for different types of locomotion, including burrowing, surface movement, and movement within a tube
- Describe how head structures and body forms are related to polychaete lifestyles
- Explain how the coelom of the Hirudinea relates to their feeding, locomotion, and circulation
- Explain how members of the family siboglinidae gain nutrition without a functional gut