

BIOLOGY 306 - COMPARATIVE ANATOMY
LAB # 1
THE PHYLUM CHORDATA

The readings and assignments in your BIOL 306 weekly lab sheets refer to COMPARATIVE ANATOMY (2nd edition) by Fishbeck D.W. and Sebastiani A.M. (2008).

Chordate Classification

For this assignment and BIOL 306 overall we will follow the classification as presented in lecture.

I. INTRODUCTION (p. 1-5)

Read this entire section.

Learn all of the terms in bold type on page 4 (Figure I.3).

II. **PHYLUM HEMICHORDATA**, The Hemichordates, Chapter 1 p. 9-12

1. **Class Enteropneusta** - acorn worms, Fig. 1-1 (ID ONLY)

Examine: *Dolichoglossus*; whole mounts

III. **PHYLUM CHORDATA, SUBPHYLUM UROCHORDATA**, Chapter 2 p. 15-20

1. **Class Ascidiacea** - tunicates and sea squirts

Examine: specimens of *Ciona*, and *Molgula* (ID ONLY)

IV. **SUBPHYLUM CEPHALOCHORDATA**, Chapter 3, p. 21-26

Examine: fluid preserved specimens, whole mount slides, and cross section slides of amphioxus (*Branchiostoma lanceolatum*)

Learn all recognizable anatomical structures.

V. **SUBPHYLUM VERTEBRATA – EXTANT DIVERSITY**

A. **CLASS CEPHALASPIDOMORPHI**

Lamprey, Chapter 14 p. 101-118

1. Examine: adult specimens of *Petromyzon marinus*; study external anatomy, sagittal sections and various transverse sections.

Find the following structures:

buccal papillae	pineal organ
eye	hypophyseal sac
external gill slits	notochord
nostril	nerve cord
dorsal fins	lingual cartilage
kidney	gills
myomeres	heart
myosepta	dorsal aorta
tongue	liver
olfactory sac	

2. Examine: specimens of larval *P. marinus* (ammocoetes) – ID ONLY

B. CLASS MYXINI

Examine: specimen of *Myxine* (hagfish)

C. CLASS CHONDRICHTHYES - Cartilaginous fishes

Subclass Elasmobranchii - Elasmobranchs have "naked" gill slits

Subclass Holocephali - Holocephalans are operculate

D. CLASS ACTINOPTERYGII – Ray-finned fishes

Subclass Chondrostei - *Acipenser* (sturgeon) and *Polyodon* (spoonbill)

Subclass Holostei – *Lepisosteus* (gar) and *Amia* (bowfin)

Subclass Teleostei – all other fish!

E. CLASS SARCOPTERYGII – Lobe-finned fishes

Superorder Crossopterygii – *Latimeria* (coelacanth)

Superorder Dipnoi – *Lepidosiren*, *Neoceratodus*, *Protopterus* (Lung fishes)

F. CLASS AMPHIBIA

Order Anura - Frogs and Toads

Order Apoda – Caecilians

Order Urodela - Salamanders and Newts

G. CLASS REPTILIA

Subclass Anapsida

Order Chelonia - Turtles

Subclass Diapsida

Superorder Lepidosauria

Order Rhynchocephalia – *Sphenodon* (Tuatara)

Order Squamata – Lizards, Snakes, Worm or Ringed Lizards

Superorder Archosauria

Order Crocodylia - Crocodiles and Alligators

H. CLASS AVES

Subclass Neornithes

Superorder Neognathae - modern flighted birds

I. CLASS MAMMALIA

Subclass Prototheria

Infraclass Monotremata – monotremes (egg laying mammals)

Subclass Theria

Infraclass Metatheria – “Marsupials”

Infraclass Eutheria - True Placental Mammals