

# ANIMAL BIOLOGY (1604) LABORATORY

## Week of 19 October

### Phylum Echinodermata & Subphylum Cephalochordata (*Phylum Chordata*)

Read pages 155-164, 167-172 in your lab manual before coming to lab.

#### **Objectives:**

- Recognize the basic structure and organization of the echinoderm classes:
  - Class Asteroidea
  - Class Echinoidea
  - Class Holothuroidea
- Compare and contrast the basic structure and organization of sea stars, sea urchins, and sea cucumbers
- Recognize the basic structure and organization of the Subphylum Cephalochordata

#### **Phylum Echinodermata** (sea stars, urchins, and cucumbers, sand dollars, crinoids)

- Marine animals
- No freshwater or terrestrial representatives
- Water Vascular System

#### *Exercise 12-1: Sea Star Anatomy*

#### **Sea Star Dissection**

(see instructions on pg. 156-159; Fig. 12.1 & 12.2)

#### **Class Asteroidea**

- Pentaradial symmetry
- Tube feet with suckers
- Appendages arranged around central disk containing mouth

**Identify** the following external structures:

- Oral surface
- Aboral surface
- Mouth
- Tube feet
- Madreporite
- Ambulacral grooves
- Anus

**Identify** the following internal structures:

- Cardiac stomach
- Pyloric stomach
- Ambulacral ridges
- Ring canal
- Stone canal
- Radial canals
- Ampullae

*Exercise 12-2: Sea Urchin Anatomy*

**Class Echinoidea**

- Disk shaped with no arms
- Compact skeleton
- Movable spines
- Tube feet with suckers

**Identify** the following external structures:

- Oral surface
- Aboral surface
- Mouth
- Teeth
- Peristome
- Tube feet
- Spines

**Identify** the following internal structures:

- Aristotle's lantern

*Exercise 12-3: Sea Cucumber Anatomy*

**Class Holothuroidea**

- Pseudo-pentaradial symmetry
- Spines absent
- Tube feet with tentacles and suckers

**Identify** the following external structures:

- Tentacles
- Tube feet
- Anus

*Lab Manual:*..... Fig. 12.1-12.5

*Lab Atlas:*..... Fig. 11.1-11.20

**Review Questions**

All Questions.....pg. 160, 162, 164, & 166

**Phylum Chordata** (tunicates, lancelets, vertebrates)

**Subphylum Cephalochordata** (lancelets)

- Marine
- Segmented and elongated body
- Notochord extends length of body

*Exercise 13-1: Cephalochordate Anatomy*

*Cephalochordate*: whole mount slide

**Identify** the following structures:

- Notochord
- Dorsal nerve cord
- Wheel organ
- Oral cirri
- Gill slits
- Gill bars

*Cephalochordate*: cross-section through pharyngeal region slide

**Identify** the following structures:

- Notochord
- Dorsal nerve cord
- Myomeres
- Gill slits
- Gill bars

*Lab Manual*:..... Fig. 13.1-13.3

*Lab Atlas*:..... Fig. 12.3-12.7

**Review Questions**

Questions 1-4.....pg. 172

*\*Read pages 173-186 in your lab manual before coming to lab next week.*