Lecture 4 – Chordates (*Additional notes*)

Chordates are animals that exhibit certain characteristics.

1. **Notochord:**
    - Supporting rod that runs through the length of the body.
    - Plays a fundamental role in the development of the overall vertebrate structure of the animal.
    - Supports the growth and development of the bone and cartilage structure.
2. **Nerve Cord:**
    - A hollow supporting structure that runs along the dorsal (top side) of the animal.
    - Framework for the central nervous system, wherein *neurons* (Cells that transmit electrical messages) are transmitted.
3. **Pharyngeal slits:**
    - Opening slits between the pharynx (near to throat) and the exterior of the chordate.
    - For certain chordates, this is used for gas exchange, while others use it to filter food particles from water.
4. **Post-Aanal Tail:**
    - Extension of the body that runs through the anal passage.

4.1 Nonvertebrate Chordates

Tunicates

- **Tunic:** Stable, flexible body covering.
- They attach themselves to rigid objects likes rocks or coral.
- **Oral Siphon:** The siphon by which they draw seawater through their bodies.
- **Branchial Basket:** The filtering system within their bodies used to filter oxygen and food particles contained in the water that they consume.
- **Atrial Siphon:** Remains of the filtering process are expelled through this siphon.

Examples: Larvae, Ascidians.

Cephalochordates

- Also known as **lancelets**.
- Occupy themselves mostly under sand.
- Have almost 100 **pharyngeal slits** used to filter food particles from water intake.
  - The process begins with water entering the *oral cirri*.
  - Then the water proceeds to the pharyngeal slits.
  - The food particles are caught by the mucus and the water proceeds out of the atrium through the *atriopore*
- Reproduce sexually by means of shedding sperm cells and eggs directly in the water.

Reproduction

- All vertebrate chordates are sexual reproducers.
- *Aquatic* species fertilize eggs externally by means of passing sperm cells into the water for females to latch onto.
- *Terrestrial* species fertilize eggs internally, by means of direct contact between males and females.