**Lecture Learning Outcomes and Objectives**

**Week 13: BODY FLUID REGULATION AND EXCRETION**

*Given 2 hours of discussion and assigned reading on the subject, upon an examination and within 70% accuracy, the student should be able to:*

**Excretion and the Environment**

1. Contrast the advantages of excreting ammonia, urea, and uric acid, and associate each with a particular environment.
2. Contrast the organs of excretion in planarians, earthworms, and arthropods.
3. Contrast the ways in which aquatic vertebrates maintain the water-salt balance.
4. Contrast the manner in which terrestrial vertebrates in extreme environments maintain the water-salt balance.

**Urinary System in Humans**

1. Trace the path of urine in humans and give a function for the organs mentioned.
2. Trace the path of filtrate in a nephron and the path of blood about a nephron.
3. List and describe the three primary steps in urine formation.
4. Describe roughly how the human kidney maintains the salt-water balance, and maintains the blood volume and pressure.
5. Understand the terms: osmosis, hypotonic, hypertonic, isotonic, osmoregulation, osmoconformer, nephron, nephridia, flame cells, malpighian tubules, nitrogenous waste, diuretic.