**Lecture Learning Outcomes and Objectives**

**Week 9: CIRCULATION AND CARDIOVASCULAR SYSTEMS**

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

**Transport in Invertebrates**

1. Give examples of invertebrates that do not have a circulatory system and explain.
2. Give examples of invertebrates that have an open circulatory system and contrast and open system with a closed system.

**Transport in Vertebrates**

1. Show how structure of arteries, capillaries, and veins suits their function.
2. Compare the circulatory circuits in vertebrates.

**Transport in Humans**

1. Describe the anatomy of the heart including its attached blood vessels.
2. Describe the heartbeat, and relate it to the cardiac cycle.
3. Trace the path of blood in the pulmonary and systemic circuits.
4. Compare the velocity of blood and blood pressure in arteries, capillaries, and veins.
5. Explain the movement of blood in veins.
6. Relate the occurrence of hypertension to heart attack and stroke.

**Blood, a Transport Medium**

1. List and discuss six functions of blood.
2. Describe the composition of plasma and the structure and function of the formed elements.
3. Describe blood clotting as a series of three main steps.
4. Describe capillary exchange in the tissues.
5. Explain who can give blood to whom, utilizing the ABO system and the Rh system
6. Understand the terms: hemolymph, interstitial fluid, artery, arteriole, atrium, vein, venule, ventricle, sphincter, valve, systemic, systole, atrioventricular, atherosclerose, diastole, tricuspid, bicuspid, myocardium, pericardium, sinoatrial, semilunar, erythrocytes, leukocytes, platelets