

## NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

### **COURSE SYLLABUS**

**Course Title:** Anatomy and Physiology II Lab

**Course:** BIO\* 212 Lab

**Course Description:** Laboratory to accompany BIO\* 212. This laboratory section presents a study of the anatomy and physiology of humans. Histology slides, animal dissections, computer dissection, diagnostic imaging, laboratory medical test results and experimentation will be used as needed. Much of the dissection experience will be provided through the use of ADAM INTERACTIVE ANATOMY and the accompanying student lab dissection guide to give students a virtual human dissection experience.

**Pre-requisite/Co-requisite:** Prerequisite: BIO\* 211 Co-requisite: BIO\* 212 Lecture

**Goals:** To provide a learning environment that will demonstrate and support lecture content dealing with the Nervous, Endocrine, Cardiovascular, Lymphatic, Respiratory, Digestive, Urinary and Reproductive Systems.

**Outcomes:** At the conclusion of this course students should be able to:

- Test spinal and cranial reflexes and explain causes of testing abnormalities
- Use diagnostic imaging to locate and identify important anatomical regions and structures within the brain using T1 and T2 weighted MRI images, models, computer simulations and dissection specimens
- Perform other diagnostic tests for vision, hearing, equilibrium, and other
- Identify structure of the nervous system using models, dissected specimens, prepared slides, drawings, computer programs, and diagnostic imaging
- Demonstrate and explain the concept of stereognosis
- Demonstrate discriminative touch, two point discrimination, and sensory adaptation and determine how it is applied in daily life
- Recognize and identify signs and symptoms of common nervous system pathologies including but not limited to ALS, CVA, Trauma, Alzheimer's Disease, Poliomyelitis, Multiple Sclerosis, Parkinsonism, and various brain tumors
- Identify histology slides for the major endocrine organs including, but not limited to the anterior and posterior pituitary, adrenal gland, thyroid, pancreas and identify specific histological feature of each
- Identify the anatomical location of major endocrine organs
- Analyze laboratory medicine values to recognize specific endocrine pathologies
- Explain how and why a glucose tolerance test is performed and relate blood glucose levels to insulin and glucagon production
- Explain the inheritance of the different major blood types – A, B, O and Rh – and determine the blood type when shown a test result
- Specify blood types when given genotypes determine bloodtransfusion compatibility when given blood phenotypes
- Identify the types of cellular elements in blood and be able to discriminate between the various cell types when given prepared slides
- Analyze CBC results to determine if an abnormality is present and if so what the implications are for the "patient"
- Explain the process of staining blood using Wright's stain and identify blood components
- Explain what happens when blood clots on a slide after observing the process microscopically
- Explain and recognize different blood pathologies when given specific laboratory test results and/or microscope slides

- Recognize major blood vessels and anatomical features of the heart using models, dissection specimens, histology slides and computer simulations
- Recognize the components of an ECG and identify selected pathologies
- Demonstrate universal precautions when handling blood specimens
- Recognize and identify chambers of the heart, valves, and other important anatomical structures associated with the heart
- Demonstrate proficiency taking a pulse, blood pressure and pulse oximetry readings and explain the significance of the results when resting and after exercise
- Describe the significance of the lymphatic system and recognize histological features
- Identify specific lymphatic structures
- Recognize and explain selected lymphatic pathologies using lab test results
- Explain diagnostic testing procedures for blood vessels, heart, and lymphatic disorders
- Identify components of the respiratory system using models, histology slides, dissection specimens, and computer simulations
- Explain the function of a peak flow meter
- Instruct a classmate in the proper technique required to use a peak flow meter
- Recognize and explain selected respiratory pathologies
- Identify components of the digestive system using models, specimens, and histology slides
- Discuss and recognize common digestive pathologies
- Explain the role of nutrition in treating selected disorders including diabetes mellitus type I and type II
- Identify urinary system anatomy and recognize selected urinary system pathology
- Use blood test results to recognize metabolic disturbances including acidosis and alkalosis and their causes when given ABG results
- Recognize, identify, and explain the role of the major reproductive organs & glands for males and females
- Recognize the role of specific placental components
- Recognize selected reproductive system abnormalities
- Create a case study including patient history assessment, differential diagnosis, diagnostic testing, diagnostic treatment and prognosis for a patient with an approved disorder that is applicable to Anatomy and Physiology content. Case study outcomes include
  - Synthesize appropriate symptoms for the selected disorder
  - Describe the patient assessment results based upon the patient signs, symptoms and history
  - Present and analyze laboratory, diagnostic imaging, genetic, and biopsy test results that are appropriate
  - Interpret test results to exclude specific differential diagnoses
  - Present and discuss treatment options explaining why a particular treatment choice is made
  - Demonstrate proper documentation of academic sources using either APA or CSE format.