

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Human Biology Lab

Course #: BIO* 115

Course Description: This laboratory component provides students with the opportunity to view tissues, organs and structures and systems on a microscopic and macroscopic basis demonstrating concepts in class. It permits an opportunity to provide to explore topics in more depth after being covered in lecture. 0 credits

Pre-requisite/Co-requisite: Sci* 099 or equivalent

Goals: To provide students with experiments and activities to reinforce basic biological principles including basic chemistry, cellular structure, genetics, and protein synthesis. To develop proficiency with the compound light microscope. To introduce students to basic histology of tissues and organs as well as examples of microscopic examples of various pathological conditions. To introduce concepts of blood typing and transfusion. To introduce students to specific examples of diagnostic tests including X-ray, CT scan and MRI. To view organs and organ systems using computer dissection and specimen dissection.

Outcomes: At the end of this laboratory course component, student will be able to:

- Identify and explain experiments involving chemical biological principles including diffusion and osmosis, pH, and enzyme activity
- Discuss the steps of protein synthesis when given a nucleotide sequence from DNA and explain the effect of a point mutation and frame shift mutation
- Explain basic genetic principles of human inheritance when given the genotypes for the parents and predict the phenotype and genotype probabilities for their children
- Explain and recognize the principles of genetic disease inheritance And discuss pro's and con's of genetic testing
- Identify examples of tissues from prepared slides including multiple examples of the four tissue types and selected examples of subtypes for each
- Recognize and discuss the structures found in the skin from prepared slides and explain selected skin pathologies including melanoma, squamous cell and basal carcinomas
- Identify selected bones and muscles

- Recognize the parts of a synovial joint in a chicken leg and a model of the knee and compare chicken leg joint to human noting evolutionary conservation
- Recognize the parts of a sheep brain and a human brain model and explain their functions – note evolutionary conservation of basic brain structures
- Keep a nutritional and activity log
- Calculate their own Basal Metabolic Rate (BMR), Kilocalories (Kcals) expended for each day for physical activities
- Compare their own Kilocalorie intake to their Kcals that have been expended for BMR plus physical activities and make recommendations to improve over all nutrition using the food pyramid
- Explain the principles of blood typing and blood transfusion and predict ratios of offspring blood types when given the parents phenotypes and genotypes
- Identify x-rays, MRIs and CT scans and give examples where each test might be used for diagnostic purposes
- Recognize histological slides of the nervous system, digestive, blood and cardiovascular, respiratory, urinary, and reproductive systems
- Recognize slides, dissection specimen and model organs and structures for each system including, nervous, respiratory cardiovascular, urinary, endocrine, and reproductive systems

College Policies

Plagiarism: Plagiarism and Academic Dishonesty are not tolerated at Northwestern Connecticut Community College. Violators of this policy will be subject to sanction. Please refer to your “Student Handbook” under “Policy on Student Rights,” the Section entitled “Student Discipline,” or the College catalog for additional information.

Americans with Disabilities Act (ADA): The College will make reasonable accommodations for persons with documented learning, physical, or psychiatric disabilities. Students should notify Roseann Dennerlein, the Counselor for Students with Disabilities. She is located at Green Woods Hall, in the Center for Student Development. Her phone number is 860-738-6307 (V/TTY) and her email is rdennerlein@nwcc.commnet.edu.

School Cancellations: If snowy or icy driving conditions cause the postponement or cancellation of classes, announcements will be made on local radio stations. Students may also call the College directly at (860) 738-6464 to hear a recorded message concerning any inclement weather closings. Students are urged to exercise their own judgment if road conditions in their localities are hazardous.