

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Human Biology

Course #: BIO* 115

Course Description: This one semester laboratory science course covers principles of cell biology, including basic biological chemistry, cell structure and function, human genetics, cell division, cellular respiration, and protein synthesis. These concepts are applied to a study of the structure and function of the major organ systems human body. Aspects of health and disease are presented including basic elements of nutrition, exercise, cancer, and chemical addictions. The course can be used as a prerequisite for BIO 211 or BIO 235.
(3 hours of lecture, 2 hours of laboratory)

Pre-requisite/Co-requisite: Prerequisite: SCI* 099 or equivalent

Goals: To provide the student with an understanding of the biological principles of animal cell physiology as it applies to the structure and function of the human body. To provide students with a basic understanding of the structure and function of the human body and how the systems work together to promote life. To develop a basic understanding of the conditions necessary for good health and examples of major causes of human disease.

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

- Recognize the process of scientific method
- Recognize the basic structure of atoms, ions, and molecules
- Define pH
- Recognize basic functional groups such as amino, carboxyl, hydroxyl and phosphorylation
- Explain the importance of homeostasis and give examples of how the body maintains homeostasis
- Identify the building blocks of carbohydrates, lipids, protein, and nucleic acids and roles of each in the body and major reaction categories important in physiology such as hydrolysis, dehydration synthesis, decarboxylation, and deamination
- Identify the basic structure and function of the plasma membranes, nucleus, organelles and cytosol of an animal cell
- Describe the sequence of events involved in protein synthesis
- Identify the stages, events and significance of mitosis and meiosis
- Define inheritance and explain the inheritance of dominant, codominant and recessive alleles – predict inheritance pattern such as X-linked, autosomal dominant and recessive

- Recognize specific examples of the four basic types of body tissues, recognize specific subtypes in each category, and identify the function of each type
- Identify and recognize:
 - Major organs and organ systems
 - Structures
 - Physiology on both an organ level and cellular level for organs and organ systems

Basic functions for the following systems:

integumentary, skeletal, muscular, nervous, digestive, cardiovascular, respiratory, urinary, endocrine, lymphatic, immune, and reproductive

- Discuss basic principles in nutrition
- Identify the major steps in cellular respiration and recognize specific important reaction categories such as phosphorylation and decarboxylation
- Identify examples of pathologies for each of the above systems including but not limited to:

Decubitus ulcers, fractures, sprains, carcinoma, basic principles of chemical addiction, depression, gastroesophageal reflux, , myocardial infarction, anemia, asthma, emphysema, kidney damage, diabetes type I and type II, HIV infection, and bacterial infections

- Recognize basic diagnostic tests including x-ray, MRI and CT Scans
- Discuss ways in which the body systems work together

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.