

Date: April 2006

- I. Course Name:** Biology of Man I: The Organism
Prefix and Number: BIO 111
Credit Hours and Contact Hours: 4 credit hours – 5 contact hours
Course Description:

A principles course with a laboratory experience designed for non-science majors. This course approaches basic biological principles with a human orientation. Chemistry of life, cellular principles and body systems are major topics. Three hours of lecture and two laboratory hours weekly.

II. COURSE OUTCOMES AND OBJECTIVES

The broad objective of this biology course is to help the student develop an understanding of the principles of biology as they relate to the human organism.

The following represent the specific objectives for the course:

1. To familiarize the student with general concepts in chemistry, atoms, bonding, pH, etc.
2. To acquaint the student with the four major organic chemical categories of the living system.
3. To introduce the student to the organization and functioning of the cell.
4. To help the student develop an understanding of digestive system.
5. To help the student develop an understanding for the working of the heart and heart disease.
6. To help the student develop a general understanding of the circulatory system, blood, and immunity.
7. To introduce the student to the respiratory and excretory systems.
8. To introduce the student to the nervous and endocrine systems of control.

This course is one of the primary science electives taken for the required science credit for the A.A. degree. It is a required course in the Chemical Dependency Counseling A.A. S. degree.

This course addresses the following college competencies: reading, oral communication and writing (in certain circumstances).

III. METHOD OF INSTRUCTION

Course materials required include a textbook in Human Biology and a laboratory manual developed and updated by the biology staff.

Methods of instruction may vary for different instructors and may include:

1. Lecture
2. Laboratory experiences (an integral part of the learning experience).
3. Group work and problem solving.
4. Class projects and presentations.
5. Papers or summary reports based on articles of interest.

Methods of Evaluation

1. Tests and quizzes on course topics and laboratory experiences.
2. Lab reports
3. Take-home exams
4. Grades as determined on projects, reports and presentations.

IV. COURSE TOPICS

1. General chemistry background - the nature of chemical substances, atoms, bonding, formulas, chemical equations, pH, and water.
2. Organic chemistry of life - carbohydrates, lipids, proteins, and nucleic acids with stress on major nutrients.
3. Cells, organelles and their functioning.
4. Cell membranes and entry and exit mechanisms.
5. Human kidney; nephrons, filtration and urine production, hormones that control urine output.
6. Digestion - digestive system anatomy and functioning.
7. Heart - anatomy, sounds, ECG's, and disease.
8. Circulatory system - blood's components, blood pressure measurements, cell types and vessel types.
9. Immune system and cancer.
10. Respiratory system - anatomy and breathing mechanism.
11. Nervous system - general organization of, human brain organization and function, neurons, reflex arcs, synapses and senses.
12. Endocrine system - representative examples of hormones and their roles.

Laboratory exercises include:

1. Metric system introduction.
2. Microscopes and slide making.
3. Basic Human Anatomy (system models, fetal pigs)
4. Fat, food labels, determination of recommended weight.
5. Semi-permeability, diffusion, and osmosis.
6. Digestive enzymes.
7. Blood pressure, heart sounds, pulse and heart anatomy.
8. ECG's (normal and abnormal).
9. Blood typing, differential white counts, and hematocrits.
10. Human brain anatomy and sheep brain dissection.
11. Respiratory anatomy and spirometry.