GROSSMONT COLLEGE

COURSE OUTLINE OF RECORD

Curriculum Committee Approval: 05/18/2021

GCCCD Governing Board Approval: 06/15/2021

BIOLOGY 118 – INTRODUCTION TO HUMAN BIOLOGY

1. Course Number Course Title Semester Units

BIO 118 Introduction to Human Biology 3

Semester Hours

3 hours lecture 48-54 total hours 96-108 outside-of-class hours 144-162 total hours

2. Course Prerequisites

None

Corequisite

None

Recommended Preparation

None

3. Catalog Description

An introduction to biological principles with a human perspective. Such basic areas as the chemistry of biological systems, cell structure and function, the structure, function, and adaptation of organisms, and cellular and population genetics and ecosystem structure will be covered by utilizing the human species to develop an understanding of these processes basic to all forms of life. Related topics such as Mendelian and population genetics, human evolution, ecosystem structure and environmental problems related to human populations will be introduced.

4. Course Objectives

The student will:

a. Explain the scientific method and the role of observation, hypothesis, experimentation, theory and law.

b. Identify the basic principles of modern biology in relationship to humans with an emphasis on homeostasis.

c. Examine classification systems for living things and describe our place among them.

d. Analyze the properties of water and organic molecules and their reactions in biological systems.

e. Compare the general processes of the genesis of life, cell functions and the structure of the cell and cell organelles which perform these processes in the human species.

f. Describe the elements of cellular reproduction including the structure of the nucleic acids, the genetic code, and the processes of replication, transcription, translation, mutation, mitosis and meiosis.

g. Recognize and describe the four basic tissues and how they form organs and organ systems.

h. Analyze the structure and function of the skeletal, muscular, digestive, respiratory, urinary, circulatory, nervous and reproductive systems of the human body.

i. Review the processes of the immune response and disease.

5. Instructional Facilities

Standard Classroom

6. Special Materials Required of Student

None

7. Course Content

a. Scientific Method: the role of observation, hypothesis, experimentation, theory and law.

b. Guiding Principles: organic evolution, homeostasis, and ecology.

c. The Five Kingdoms and our place among living things.

d. Basic Chemistry: elements common in biology, types of bonding, characteristics of water, pH scale, characteristics of carbohydrates, fats and proteins.

e. Cell Biology: structure and function of cell membranes, cellular organelles, including cellular respiration and photosynthesis, and the nucleus.

f. Cellular Genetics: structure of the nucleic acids, genetic code, replication, transcription, translation and mutation.

g. Mitosis and Meiosis: the processes and phases of each.

h. Tissues: structure and function of the four basic tissues and how they form organs and organ systems.

i. Organ Systems: the structure and function of the following organ systems in detail -- nervous system, skeletal system, muscular system, cardiovascular system, immune system, respiratory system.

j. Other Systems: covered in self-study units: digestive, reproductive, urinary, endocrine, sensory, and integumentary systems.

8. Method of Instruction

1. Lecture
2. Discussions
3. Films and videos

9. Methods of Evaluating Student Performance

a. Written exams including a final which are both objective and essay.

b. Research term report: The student will choose from a list of topics of current interest including the use and abuse of Botox, water fluoridation, and the effects of acid rain on human health and the environment. Students may select alternate topics with the approval of the instructor.

c. Student is expected to submit assignments and exams that include appropriate college-level grammar and spelling.

10. Outside Class Assignments

a. Reading of text book as assigned.

b. Research term report: student will choose from a list of topics of current interest including the use and abuse of Botox, water fluoridation, and the effects of acid rain on human health and the environment. Students may select alternate topics with the approval of the instructor.

11. Representative Texts

a. Representative Text(s):

Starr, C. and B. McMillian*. Human Biology,* 11th edition, Brooks/Cole, Belmont, CA. 2015**.**

b. Supplementary texts and workbooks:

None

Addendum: Student Learning Outcomes

Upon completion of this course, our students will be able to do the following:

1. Define and distinguish between the scientific method of investigation and other ways of knowing things.
2. List at least three types of evidence that have led to the Theory of Organic Evolution.
3. Given an observation of a disruption in homeostasis, identify the three parts of the negative feedback involved, and how homeostasis is restored in the body.

d. Describe the physiological effects of long-term sympathetic nervous system stimulation on the human body.