Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for BIO 20

CONTEMPORARY HUMAN BIOLOGY

Effective: Fall 2015

I. CATALOG DESCRIPTION:
BIO 20 — CONTEMPORARY HUMAN BIOLOGY — 3.00 units

A study of the Human organism, beginning at the cellular level, emphasizing organ systems, and also including topics of genetics and biotechnology. (Note: Formerly BIOL 20.)

3.00 Units Lecture

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	54.00
Total Hours:	54.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Identify and describe the physical structure of cells, tissue types and organ systems, and review their functions;
B. Develop an understanding of the homeostatic mechanisms maintaining the human body and recognize common pathological conditions caused by homeostatic failure;
C. Appreciate the integration and coordination between of the different body systems;
D. Define organic molecules and recognize the four major groups of organic molecules found in humans;
E. Identify some of the major biotechnology techniques currently used and their effects on humans and/or their environment
    1. Discuss the basic principles of cellular metabolism and apply these concepts to human physiology on multiple levels

V. CONTENT:
A. The origin and nature of life
    1. Properties of life
    2. Chemistry of life: inorganic and organic
    3. Basic unit of life: cells
    4. Cellular functions: metabolism, growth, reproduction
B. Structural organization, function and homeostatic mechanisms of the human body
    1. Muscle system
    2. Skeletal system
    3. Nervous and sensory systems
    4. Cardiovascular system
    5. Endocrine system
    6. Immunity
    7. Respiration system
    8. Urinary system
    9. Digestion and nutrition
    10. Reproductive system
C. Failure of homeostasis
    1. Cancer
    2. Infectious diseases
    3. Lifestyle associated diseases
D. DNA, genes and biotechnology
    1. Patterns of inheritance
    2. Gene expression
    3. Application of biotechnology

VI. METHODS OF INSTRUCTION:
A. **Classroom Activity** -
B. **Field Trips** -
C. **Research** -
D. World Wide Web sites

E. Discussions and group activities related to Bioethical issues
F. Lectures (includes PowerPoint images, handouts and traditional blackboard)
G. Video clips
H. **Written exercises and case studies** -

VII. TYPICAL ASSIGNMENTS:
A. Written Assignment
1. Using written and demonstrated guidelines, find a current article on a pre-approved topic.
2. Discussion of how to determine the scientific validity of information, ranging from websites, articles and news media.
3. Three to four page research paper with standardized bibliography

VIII. EVALUATION:
A. **Methods**

1. Exams/Tests
2. Research Projects
3. Papers
4. Group Projects
5. Other:
a. Written Assignment:
1. Using written and demonstrated guidelines, find a current article on a pre-approved topic.
2. Discussion of how to determine the scientific validity of information, ranging from websites, articles and news media.
3. Three to four page research paper with standardized bibliography
b. Examinations
1. Midterm and final exams, mostly consisting of multiple choice questions
2. All exams include 4-6 short written essays related to larger concepts and interconnections between lecture topics.

B. **Frequency**

1. Frequency of Evaluation
a. Minimum of one midterm examination
b. Minimum of one written assignment and/or group project
c. Final examination

IX. TYPICAL TEXTS:
1. Starr , Cecie . *Human Biology*. 10 ed., Thompson Brooks/Cole, 2014.
2. Chiras, Daniel. *Human Biology*. 8th ed., Jones & Bartlett Learning, 2013.
3. Mader, Sylvia. *Human Biology*. 13 ed., McGraw-Hill, 2013.

X. OTHER MATERIALS REQUIRED OF STUDENTS:
A. For a web based course, frequent access to a computer with an Internet connection