



DEPARTMENT OF SCIENCE
COURSE INFORMATION SHEET FOR
BIO226 – ANATOMY AND PHYSIOLOGY I

All members of the Science Department at Clinton Community College use the respective course templates as a basis for their course syllabi. Faculty may, at their discretion, change the order of the course content or add course content.

COURSE NUMBER AND TITLE: BIO226 – Anatomy and Physiology I

COURSE SECTION: *TBA*

CONTACT HOURS: 5 **CREDIT HOURS:** 4

SEMESTER AND YEAR: *TBA*

INSTRUCTOR'S NAME, TELEPHONE NUMBER, EMAIL ADDRESS, OFFICE NUMBER, AND OFFICE HOURS: *TBA*

I. COURSE DESCRIPTION:

This course is the first of a two-semester, comprehensive survey of the ten organ systems of the human body, integrating chemical bases of the physiology of each system with structure and function. Includes a study of cells and tissues, digestive, respiratory, urinary and reproductive systems. The laboratory section of the course includes mammalian dissection and direct observation, by experiment, of the natural laws governing human physiological processes. There are three hours of lecture and one two-hour laboratory per week.

II. PREREQUISITE: BIO 101 – General Biology I, or CHE101 - Applied Chemistry, or CHE111 – General Chemistry I, or one year of high school biology or chemistry is recommended

III. COURSE OBJECTIVES:

As the result of instructional activities, students will be able to:

ANATOMY

1. discuss the organization of the human body in anatomic terminology
2. discuss the vertebrate/mammalian body plan
3. discuss the location of body cavities and membranes, cells, tissues, organs, organ systems
4. compare and contrast the gross and microscopic anatomy of the cells, tissues, organs, and organ systems of the body
5. compare and contrast the normal microanatomy of the four basic tissue types (epithelia, connective, muscle, nervous) and their fifteen subtypes with attention to the details of cellular and intracellular morphology, stratification, nature of the interstitial material and anatomic location in the organ systems under study via: lecture material, demonstrations, and web-based searches

6. direct visualization in the lab using light microscopes and electron micrographs
7. compare and contrast the normal gross and microscopic anatomy of the body organs and organ systems (gastrointestinal, respiratory, urinary, and reproductive) with emphasis on the size, shape, internal architecture, microanatomy, anatomic relationships, and locations via: lecture material, demonstrations, and internet searches; dissection of lab specimens: preserved mammalian organs and the organ systems of cats, fetal pigs; observation of human organs (pathologic specimens)
8. discuss the chemical structure of biologically important small molecules and macromolecules which serve as catalysts, chemical messengers (hormones), cell receptors, ion channels, neurotransmitters, transport molecules, antibodies, and structural components of cells, tissues, and organs
9. present the concept of differential diagnosis as a major critical thinking tool in the understanding of, and application of, anatomic and physiologic principles in health and disease
10. demonstrate and discuss the clinical implications of structural deviations from normal gross and microscopic anatomy associated with pathologic states (disease)

PHYSIOLOGY

11. explain the functions (physiology) of the body molecules, cells and organelles, tissues, organs, and organ systems
12. explain the chemical and physical principles which underlie molecular, cellular, tissue, organ, and organ system physiology for the systems under study
13. present structure/function correlations at the chemical, cellular, tissue, organ, and organ system levels for the systems under study
14. stress the importance of homeostasis and discuss homeostatic mechanisms in detail which maintain the normal internal environment consistent with life (maintenance of blood pressure, blood glucose, fluid and electrolyte balance, acid/base balance, body temperature)
15. investigate physiologic functions by direct participation in laboratory experimentation, data collection, and analysis
16. perform pulmonary function tests of lung volumes/capacities
17. determine basal metabolic rate, body mass index
18. perform urinalysis
19. investigate enzymatic action of digestive enzymes
20. present correlations between physiologic processes studied in class and clinical observations, procedures, and therapeutic options
21. demonstrate and discuss the clinical outcomes of pathologic alterations in the normal physiology of the body systems which occur at the chemical, organelle, cellular, tissue, organ, and organ system levels of function in disease states

IV. REQUIRED TEXTBOOK AND MATERIALS:

REQUIRED TEXTBOOK:

1. Human Anatomy and Physiology with cd, 8th edition; Marieb. Addison Wesley. ISBN # 978-0-8053-7253-3
2. Human Anatomy and Physiology Lab Manual – Cat Version, 8th edition; Marieb. Addison Wesley.

ISBN # 0-8053-7258-X

3. Human Anatomy and Physiology Study Guide with cd; Marieb. Addison Wesley.
ISBN # 978-0-8053-7305-9
4. Human Anatomy Color Book; Matt. Dover.
ISBN #978-0-486-24138-8

REQUIRED MATERIALS:

Safety glasses are required for all on-campus sections.

V. METHODS OF INSTRUCTION/COURSE ORGANIZATION: *To be determined by the respective instructor.*

VI. ATTENDANCE PROCEDURE (INCLUDING MAKEUP POLICY): *To be determined by the respective instructor.*

VII. BIBLIOGRAPHY OF READINGS (IF APPLICABLE): *To be determined by the respective instructor.*

VIII. A. METHODS OF EVALUATION (INCLUDING THE CALCULATION OF COURSE GRADE): *To be determined by the respective instructor. The methods of evaluation shall include tests (test types, length and weight of each), papers (weight of each), projects (weight of each), and other forms of evaluation (weight of each).*

VIII. B. GRADING SCALE: *To be determined by the respective instructor. The grading scale shall indicate what numerical scores correspond to the following grades: A, A-, B+, B, B-, C+, C, C-, D+, D, and F.*

IX. GENERAL TOPICS OUTLINE:

1. Introduction to Anatomy and Physiology
2. Organization of the Human Body
3. Anatomical Terminology
4. Histology – Basic Tissue Types and Subtypes: Epithelium, Connective Tissues, Muscle, Nerve
5. Digestive System
6. Metabolism
7. Respiratory System
8. Urinary System
9. Fluid and Acid/Base Balance
10. Reproductive System

X. ACADEMIC INTEGRITY: Academic honesty is expected of all Clinton Community College students. It is academically dishonest, for example, to misrepresent another person's work as one's own, to take credit for someone else's work or ideas, to accept help on a test, to obtain advanced information on confidential test materials, or to intentionally harm another student's chances for academic success.

XI. ACCOMMODATIVE SERVICES: If you have, or suspect you may have, any type of disability or learning problem that may require extra assistance or special accommodations, please speak to me privately after class or during my office hours as soon as possible so I can help you obtain any assistance you may need to successfully complete this course. You should also contact Laurie Bethka, Room 420M in the Academic Assistance Center, for further assistance.

XII. COURSE CONTINUITY PLAN: In the case that the college officially closes because of an emergency which causes a short term disruption of this course, we will utilize e-mail to continue this course in the short term (1-3 weeks). All students need to utilize their campus e-mail to receive course related information.