

HERKIMER COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Mathematics/Science/Allied Health and Physical Education
COURSE TITLE: Fundamentals of Human Anatomy and Physiology
COURSE NUMBER: SC 118
CREDIT: 3 Credits (3,0)
DATE: Revised Fall 2006
GRADE TYPE: Letter Grade
PREPARED/REVIEWED BY: Susan Capron

COURSE DESCRIPTION

This course provides a basic understanding of the human anatomy and its physiology. This study of the human body systems includes medical and technical applications and terminology.

COURSE OBJECTIVES

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

1. Recognize that roots, prefixes and suffixes make up scientific terms and learn the meanings of those used in this course.
2. Define anatomy and physiology and identify their relationship.
3. Describe the basic structural plan of the body.
4. Define directional terms and the anatomical position.
5. List by name and location the principal body cavities and their major organs.
6. List in sequence the levels of structural organization and identify examples of each level.
7. Discuss the characteristics all cells have in common and give examples of cell specializations.
8. Identify the major chemical compounds associated with living systems: carbohydrates, lipids, proteins, nucleic acids, salts and water. Describe the function of each.
9. Define diffusion, osmosis, filtration, active and passive transport, pinocytosis and phagocytosis and give the significance of each.
10. Define a tissue and classify the tissues of the body by structures and functions.
11. List and describe the symptoms of tissue inflammation and the stages involved in the inflammatory response.
12. List the location and functions of the membrane types.
13. Define homeostasis.
14. Describe how the body achieves thermoregulation.
15. Define disease and its associated terminology.
16. Define the skin as an organ of the integumentary system.
17. Compare the structure and functions of the dermis and epidermis.
18. Identify the functions of epidermal derivatives such as hair, nails and glands.
19. Classify burns.
20. Define medical terminology associated with the integumentary system.
21. Identify the components of the skeletal system.
22. List the functions of the skeletal system.
23. Identify the gross features of a long bone.
24. Define a fracture and list several common kinds of fractures.
25. Define medical terminology associated with the skeletal system.

26. Classify articulations by structure and degree of movement.
27. Define medical terminology associated with articulations.
28. Compare the three muscle tissue types as to location, microscopic appearance, nervous control and functions.
29. Discuss the physiological importance of the motor unit.
30. Define medical terminology associated with the muscular system.
31. Identify the relationship between bones and skeletal muscles in producing body movements.
32. Discuss most body movements as activities of groups of muscles by explaining the roles of the prime mover, antagonist, and synergist.
33. List the criteria employed in naming skeletal muscles.
34. Identify by location and function a dozen of the larger superficial muscles.
35. Identify the role of the nervous system in maintaining homeostasis.
36. Classify the components of the nervous system into divisions.
37. Identify the parts of a neuron.
38. List the sequence of events involved in the initiation and transmission of a nerve impulse.
39. Define a synapse and describe the conduction of an impulse across a synapse.
40. Identify the principal structural features of the spinal cord.
41. Define a reflex and trace the pathway of a reflex arc.
42. Identify the principal parts of the brain and the major function of each.
43. Compare the sympathetic and parasympathetic divisions of the autonomic nervous system in terms of structure and function.
44. Define medical terminology associated with the nervous system.
45. Discuss the function of the endocrine system in maintaining homeostasis.
46. Locate the nine endocrine glands and identify the major functions of each.
47. Discuss the mechanism of hormone action.
48. Define medical terminology associated with the endocrine system.
49. Define the principal physical characteristics of blood and its functions.
50. Identify the plasma and formed element constituents of blood and their specific functions.
51. Define hematopoiesis.
52. List the sequence of events in clot formation.
53. Explain ABO and Rh blood grouping.
54. Discuss the significance of commonly used blood tests.
55. Identify the blood vessels, chambers, and valves of the heart.
56. Trace the route of blood in the heart, pulmonary and systemic circulation.
57. Explain the initiation and conduction of nerve impulses through the electrical conduction system of the heart.
58. Compare the structure and function of arteries, arterioles, capillaries, venules, and veins.
59. Define blood pressure and explain how it is measured.
60. Define medical terminology associated with the cardiovascular system.
61. Identify the components and functions of the lymphatic system.
62. Describe the immune system and distinguish between active and passive immunity.
63. Define digestion as a mechanical and chemical process.
64. Identify the organs of the alimentary canal and the accessory organs of digestion.
65. Identify the layers of the alimentary canal wall, the major modifications, and the significance of each.
66. Describe the actions of the various secretions of the digestive system including saliva, gastric juices, pancreatic juices, bile, and intestinal juices.
67. Describe the role of peristalsis.
68. Define absorption and identify the chemicals absorbed.

69. List the functions of the digestive tract organs: mouth, pharynx, esophagus, stomach, duodenum, liver, pancreas, jejunum-ileum, colon, and rectum.
70. Define vitamin and differentiate between fat soluble and water soluble vitamins.
71. Define Calorie and identify the caloric value of various nutrients.
72. Define medical terminology associated with the digestive system.
73. Identify the organs of the respiratory system and list their specific functions.
74. List the events involved in inspiration and expiration.
75. Explain the structure of the alveolar-capillary membrane and its function in the diffusion of respiratory gases.
76. Compare the volumes and capacities of air exchanged during respiration.
77. Describe how the respiratory gases are transported by the blood.
78. Define medical terminology associated with the respiratory system.
79. List the organs of the urinary system and their specific functions.
80. Identify the parts of a nephron.
81. List the sequence of events involved in urine formation.
82. Define the medical terminology associated with the urinary system.
83. List the organs that constitute the male and female systems of reproduction and their specific functions.
84. Trace the route of sperm from formation through ejaculation.
85. Discuss the origin and chemical composition of semen.
86. List the physiological effects of testosterone.
87. Describe the sequence of events in an ovarian cycle.
88. Discuss the effects of FSH, LH, estrogen and progesterone.
89. Relate the ovarian and menstrual cycles.
90. Define medical terminology associated with the reproductive systems.

OUTCOMES

1. In 60% of exams and quizzes, the student will demonstrate an understanding of commonly used anatomical terms.
2. In 60% of exams and quizzes, the student will demonstrate an understanding of the structural organization of the human body.
3. In 60% of exams and quizzes, the student will demonstrate an understanding of the chemical make-up of cells and tissues and the importance of homeostasis for maintaining normal function.
4. In 60% of exams and quizzes, the student will demonstrate an understanding of the structure and function of the major organ systems of the human body.

MAJOR DIVISIONS OF SUBJECT MATTER

- I. Human Organization
 - A. Organization of the Human Body
 - B. Basic Chemistry
 - C. Cells and Tissues
 - D. Body Membranes and Skin
- II. Support and Movement
 - A. Skeleton – Bones and Joints
 - B. Muscles

- III. Integration and Coordination
 - A. Nervous System and Senses
 - B. Endocrine System
- IV. Maintenance of the Body
 - A. Circulatory System
 - B. Respiratory System
 - C. Digestive System and Metabolism
 - D. Urinary System
 - E. Reproductive System

COURSE REQUIREMENTS

Please see individual instructor's syllabus.

EVALUATION/GRADING

Please see individual instructor's syllabus.

TEXTBOOK

Please see individual instructor's syllabus.

CLASSROOM POLICIES

Cell phones, food, drink, and inappropriate language are not allowed in class. Regular attendance and punctuality are expected.

Please see individual instructor's syllabus for a more detailed explanation of classroom policies.