Course Outline

**COURSE:** AH 15  
**DIVISION:** 50  
**ALSO LISTED AS:** BIO 15  
**TERM EFFECTIVE:** Spring 2018  
**CURRICULUM APPROVAL DATE:** 10/09/2017

**SHORT TITLE:** ANATOMY AND PHYSIOLOGY

**LONG TITLE:** Survey of Human Anatomy and Physiology

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>18</td>
<td>Lecture: 4</td>
<td>Lecture: 72</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab: 3</td>
<td>Lab: 54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other: 0</td>
<td>Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total: 7</td>
<td>Total: 126</td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION:**

An introductory study of the structure and function of the human body. Includes study at the cellular and organ system levels, emphasizing integration of systems. Note that a cadaver will be observed in this course. This course is also listed as BIO 15. ADVISORY: Biology 10 or Biology 12 with a grade of 'C' or better. Eligible for English 250, English 260 and Mathematics 430. Course will include viewing of a cadaver.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

L - Standard Letter Grade

**REPEATABILITY:** N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion
03 - Lecture/Laboratory
04 - Laboratory/Studio/Activity
72 - Dist. Ed Internet Delayed
73 - Dist. Ed Internet Delayed LAB

**STUDENT LEARNING OUTCOMES:**

1. Identify selected structures of the human body.
2. List the organ systems of the human body and explain their functions.

3. Relate the structures of the human body to their functions.

4. Develop basic laboratory and dissection, skills which can be utilized in further investigations.

5. Apply knowledge of structure and function learned at one level or system to other levels or systems.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 10/09/2017

Objective: 1. Describe the levels of organization in living things. 2. Define and discuss homeostasis. 3. Define terms pertaining to body regions and relative position of body parts. 4. Describe the planes or sections of the body. 5. Describe the body cavities and contents. 6. Describe the abdominopelvic quadrants.

Assignments: Read text. Answer homework questions. Complete lab reports.

Objective: 1. Describe the structure of an atom. 2. Define atomic mass, ion, isotope. 3. Describe the types of chemical bonds and their relative strength. 4. List the primary inorganic and organic constituents of the body. 5. Describe the important qualities of proteins, lipids, carbohydrates and nucleic acids and explain their roles in biological systems. 6. Explain what a chemical reaction is. 7. Explain the meaning of chemical formulas. 8. Define and discuss dehydration and condensation reactions. 9. Define: acid, base, buffer and explain their importance to biological systems. 10. Explain the meaning of the pH scale. 11. Define oxidation and reduction and explain the importance of redox reactions to energy transfer.

Assignments: Read text. Answer homework questions. Complete lab reports.

Objective: 1. Describe cell membrane structure and function. 2. Define and discuss: diffusion, facilitated diffusion, filtration, pinocytosis, phagocytosis, exocytosis, hypertonic, hypotonic, isotonic. 3. Describe the structure and functions of mitochondria, lysosomes, vacuoles, centrioles, cilia, flagella, Golgi apparatus, endoplasmic reticulum, ribosomes, nucleus, nucleolus, cytoskeleton and other structures. 4.
Discuss the composition and roles of the cytoplasm. 5. Discuss protein synthesis. 6. List the phases of the cell cycle and mitosis and the important events of each phase. 7. Compare and contrast mitosis and meiosis.

Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 6 lab

Hours  Tissues, Membranes and Integument

Objectives: 1. Describe the four basic tissue types and their functions and locations. 2. Discuss the classification of epithelium and connective tissue and list and describe the different types of epithelium and connective tissue. 3. Be able to describe and identify the following: epithelium (simple squamous, simple cuboidal, simple columnar, stratified squamous, pseudo stratified, transitional), connective (areolar, dense, adipose, hyaline cartilage, fibrocartilage, elastic cartilage). 4. Describe four membrane types and their functions. 5. Discuss the functions of the integumentary system. 6. Describe the structures of the integumentary system. 7. Describe hair structure and distribution. 8. Discuss the role of the skin in temperature regulation.

Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture Hours  Metabolism


Assignments: Read text.

10/13/2017
Answer homework questions.

4 lecture, 6 lab Hours  Skeleton, Osseous Tissue and Articulations
Objectives: 1. Describe the structure of long bones. 2. Compare and contrast the structure of spongy and compact bone. 3. Describe the structure of an osteon. 4. Discuss: osteoprogenitor cells, osteoblasts, osteocytes, osteoclasts. 5. Describe: bone growth, ossification, fracture healing. 6. List and describe the different types of articulations. 7. Describe a generalized synovial articulation. 8. Identify structures of articulations. 8. List define types of movements that occurs at articulations.
9. Identify the components of the axial and appendicular skeleton. 10. Identify the bones and major bone markings of the human skeleton. 11. Identify paranasal sinuses and fontanels. 12. Compare and contrast male and female skeletons.
Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 3 lab Hours  Muscle Tissue and Muscular System
Objectives: 1. Compare and contrast the three types of muscle tissue. 2. Describe the structure of the sarcomere. 3. Describe and explain the sliding filament theory of contraction. 4. Explain how muscles cause movement and how the action of a muscle can be determined by knowing its origin and insertion. 5. Identify major muscles of the body. 6. Identify the three types of muscle tissue.
Assignments: Read text. Answer homework questions. Complete lab report.

4 lecture, 3 lab Hours  Nervous Tissue, Spinal Cord and Nerves
Objectives: 1. Describe the structure of motor, association and sensory neurons. 2. List and describe types of neuroglia. 3. Discuss the myelin sheath and its function. 4. Describe the conduction of a nervous impulse and synaptic transmission. 5. Describe the organization of the nervous system. 6. Describe the composition of a nerve and nerve roots. 7. Describe the form major nerve plexi. 8. Describe and discuss the major features of the spinal cord. 9. Describe the autonomic nervous system. 10. Compare and contrast the sympathetic and parasympathetic divisions of the ANS.
Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 3 lab Hours  Brain
Objectives: 1. Identify and briefly describe the function of: medulla oblongata, pons, midbrain, thalamus, hypothalamus, cerebellum,
cerebrum, ventricles, limbic system. 2. Identify and discuss the following structures or areas of the cerebrum: cerebral cortex, hemispheres, corpus callosum, cerebral lobes, basal ganglia, selected functional areas.

Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 3 lab Hours General and Special Senses
Objectives: 1. Describe the receptors for touch, pressure, pain, temperature and proprioception. 2. Explain perception, including adaptation, projection and the law of specific nerve energies. 3. Describe and discuss olfactory and gustatory receptors and perception.

Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 3 lab Hours Endocrine System
Objectives: 1. Compare and contrast endocrine and exocrine glands. 2. Discuss the actions of hormones and prostaglandins. 3. Explain the general mechanisms for hormone regulation. 4. Identify the major endocrine glands. 5. List the hormones produced by the major endocrine glands and explain their functions.

Assignments: Read text. Answer homework questions. Complete lab reports.

4 lecture, 3 lab Hours Circulatory System: Blood, Heart, Blood Vessels and Lymphatic System
Objectives: 1. Describe the composition and functions of the blood. 2. Describe the structure and functions of the heart. 3. Discuss the cardiac cycle, heart sounds, cardiac conduction system, and the ECG. 4. Discuss the pulmonary and systemic circuits. 5. Identify selected blood vessels. 6. Compare and contrast the structures and functions of different types of blood vessels. 7. Define and discuss blood pressure regulation. 8. Discuss the functions of the lymphatic system. 9. Explain the relationship between the cardiovascular and lymphatic systems. 10. Compare and contrast specific and non-specific immune response. 11. Describe the roles of B and T cells and other immune cells. 12. Define: antigen, antibody

10/13/2017
the immune system.

Assignments: Read text.
Answer homework questions. Complete lab report.
4 lecture, 3 lab Hours  Respiratory System
Objectives: 1. List and describe the general functions of the
respiratory system. 2. Identify and describe
the structures of the
respiratory system. 3. Describe and discuss respiratory movements and
volumes. 4. Describe the transport of oxygen and carbon dioxide in the
blood. 5. Define surface tension and
surfactant and explain their
importance to respiration. 6. Discuss how physical laws affect
respiration. 7. Discuss the effects of altitude on respiration.
Assignments: Read text. Answer homework
questions. Complete lab report.
4 lecture, 3 lab Hours  Digestive System
Objectives: 1. List, describe and identify the organs of the digestive
system. 2. Describe the functions of the digestive
system. 3. Describe
the general histology of the alimentary canal. 4. Discuss mechanical
and chemical digestion. 5. Discuss the movements of the digestive
tract. 6. List the enzymes of digestion and
the reactions that they
catalyze. 7. Describe the processes and locations of absorption in the
digestive tract.
Assignments: Read text. Answer homework questions. Complete lab report.
4 lecture, 3 lab Hours  Urinary System; Fluid and Electrolyte Balance
Objectives: 1. List, describe and identify the structures of the
urinary system. 2. Describe the structure and function of the
nephron. 3.
Discuss the process of urine formation and its
regulation. 4. Discuss the regulation of the volume and composition
of the blood by the urinary system. 5. Discuss the roles of ADH,
aldosterone and
other hormones in regulation of urine production. 6.
Describe the different fluid compartments and discuss the movement of
fluid between the compartments. 7. Discuss micturition and
its
control.
Assignments: Read text. Answer homework questions. Complete lab
report.
4 lecture, 3 lab Hours  Reproduction and Development
Objectives: 1. Describe and discuss the structures and
functions of
the male and female reproductive systems. 2. Identify selected
structures of the male and female reproductive systems. 3. Discuss
the processes of spermatogenesis and oogenesis and their
regulation. 4. Describe ovulation. 5. Describe the events of the male and female in intercourse. 6. Discuss common clinical conditions affecting the reproductive systems. 7. Describe and discuss: fertilization, implantation, placentation. 8. Describe and discuss: early embryonic stages and germ layer formation. 9. Describe the embryonic membranes. 10. Describe and discuss the roles of the placenta and umbilical cord. 11. Describe labor and delivery.

Assignments: Read text. Answer homework questions. Complete lab report.

WEEK 18 2 hours

Final Examination.

METHODS OF INSTRUCTION:
Instructional methods will include lecture and lab, with use of audio/visual aids, computer, models, slides, dissection, and possible observation of cadavers.

OUT OF CLASS ASSIGNMENTS:
Required Outside Hours: 2
Assignment Description: Period homework assignments requiring that the student describe and explain the structure and function of the major organ systems of the human body.

METHODS OF EVALUATION:
Writing assignments
Percent of total grade: 10.00 %
Percent range of total grade: 10 % to 15 % Lab Reports
Problem-solving assignments
Percent of total grade: 3.00 %
Percent range of total grade: 3 % to 10 % Lab Reports Quizzes
Skill demonstrations
Percent of total grade: 2.00 %
Percent range of total grade: 2 % to 5 % Class Performance/s
Objective examinations
Percent of total grade: 70.00 %

REPRESENTATIVE TEXTBOOKS:
Required Representative Textbooks
Update to newer edition


ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
  GAV B2, effective 201330
  GAV B3, effective 201330

CSU GE:
  CSU B2, effective 201330
  CSU B3, effective 201330

IGETC:
  IGETC 5B, effective 201330
  IGETC 5C, effective 201330

CSU TRANSFER:
  Transferable CSU, effective 201330

UC TRANSFER:
  Transferable UC, effective 201330

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: AH
CSU Crosswalk Course Number: 15
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: B
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000438354
Sports/Physical Education Course: N
Taxonomy of Program: 123010