C-ID Descriptor
Human Anatomy and Physiology with Lab

Descriptor Details

- **Descriptor Title**: Human Anatomy and Physiology with Lab
- **C-ID Number**: 115
- **Suffix**:
  - Sequence (S)
- **Units**: 8.0
- **Hours**: 0000
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General Description

Structure, function, integration and homeostasis of the human body at the cellular, tissue, organ, organ system and organism level, including the integumentary, skeletal, muscular, nervous, sensory, cardiovascular, lymphatic, immune, respiratory, urinary, digestive, endocrine, and reproductive systems. This course is primarily intended for allied health majors.

Prerequisites

None

Corequisites

None

Advisories

1. Eligible for college-level English (C-ID ENGL 100).
2. Eligible for college-level math (C-ID MATH 110, 120, 130, 140, 150, 151 OR any other course with Intermediate Algebra as a prerequisite)
3. Non-majors general biology course and college-level chemistry.

Content

Although it is expected that Anatomy and Physiology content will be integrated in this Anatomy and Physiology course sequence,

Anatomy content must include:

1. **Cellular structures**
2. **Histology**
3. **Integumentary system**
4. **Skeletal system**
5. **Muscular system**
6. **Surface (External) Anatomy**
7. **Nervous system including special senses (sensory organs)**
8. **Endocrine system**
9. **Cardiovascular system**
10. **Lymphatic system**
11. **Respiratory system**
12. **Urinary system**
13. **Digestive system**
14. **Reproductive system**
15. **Comparison of normal versus diseased, injured or age-related structural changes in any or all of the above organ systems.**

and

Physiology content must include:

1. **The chemistry of life**
2. **Homeostasis and feedback systems**
3. **Cell membrane, and cell-cell communication**
4. **Major body control systems**
5. **Functions of the integumentary system**

6. **Role of bone tissue in homeostasis**
7. **Skeletal muscle structure and function**
8. **Membrane potential and action potentials**
9. **Nervous system and integration**
10. **Sense organ function**
11. **Heart and cardiac cycle**
12. **Cardiovascular system function and regulation**
13. **Lymphatic system functions and immunity**
14. **Respiratory system function and regulation**
15. **Urinary system function and regulation**
16. **Water, electrolyte and acid-base balance**
17. **Digestion and nutrition**
18. **Metabolism**
19. **Thermoregulation**
20. **Endocrine functions and regulation**
21. **Reproductive functions and regulation**

Lab Activities

This course must include a laboratory component with greater than 80% hands-on learning supporting the course outcomes. Laboratory content must be considered when matching courses to this descriptor.

Anatomy content includes:

1. **Identification of microscopic structures and tissues.**
2. **Identification of bones and bone features.**
3. **Identification of skeletal musculature and muscle features.**
4. **Identification of internal organs.**

And all or most of the following:

5. **Dissection of organs or observation of dissected organs.**
6. **Dissection of organisms or observation of dissected organisms.**
7. **Identification of structures on models.**

Typical Physiology lab activities would involve investigation or activities related to human respiration, cardiac function, blood pressure, acid-base

balance, urinary output, sensory reflexes and sensory systems or similar activities that illustrate the principles of human body function and homeostasis. Physiology experimentation should involve the scientific method.

Objectives

At the conclusion of this course, the student should be able to:

1. **Describe and distinguish various roles of major classes of biomolecules in living cells.**
2. **Describe key structural features of different human cell and major tissue types.**
3. **Identify and describe the anatomy of the systems of the human body.**
4. **Identify key functions of major organ systems and the physiological mechanisms underlying their operation.**
5. **Relate structure and function at the cellular through system levels of organization of human body systems**
6. **Describe structural or anatomical changes that occur in disease, injury or aging of the human body systems.**
7. **Demonstrate knowledge of metabolic and physiological disorders of the major organ systems.**
8. **Describe key functional features of different types of human cells and how they communicate.**
9. **Demonstrate an understanding of how organ systems of the body are integrated and regulated.**
10. **Demonstrate an understanding of how homeostasis is maintained in the body.**
11. **Analyze experimental data to demonstrate physiological principles.**
12. **Demonstrate an understanding of the scientific method, experimental design, and the philosophy of science. Apply the scientific method and philosophy of science by designing components of and carrying out physiological experiments.**

Evaluation Methods

Examinations with objective and written components.

Laboratory practical examinations for anatomy laboratory content are appropriate.

Laboratory reports for physiology laboratory content are appropriate.

Case studies and clinical applications may be included.

Textbooks

Current (pursuant to C-ID policy) college level human anatomy and physiology text(s): Combined text such as Principles of Anatomy and Physiology by Tortora and Derrickson, Marieb, or Essentials of Human Anatomy and Physiology by Martini and Bartholomew, or equivalent, OR separate anatomy and physiology texts such as Human Anatomy by Mareib, Saladin or McKinley or Martini or McLoughlin, or equivalent, and Human Physiology by Vander or Silverthorn or Fox or equivalent.

Current anatomy and physiology lab manual or lab manual developed on site or Essentials of Human Anatomy and Physiology Laboratory Manual by Marieb or equivalent.

Anatomy support materials such as histology manuals, cat/pig dissection manuals, Atlas of Anatomy by Gilroy, Pearson PAL (Practice Anatomy Lab) or McGraw-Hill APR (Anatomy and Physiology Revealed) are appropriate.

Physiology support materials such as BioPac or data acquisition systems, and PhysioEx or similar interactive computer programs are appropriate.