

BI 014: HUMAN ANATOMY AND PHYSIOLOGY II

Originator

gvezzoli

Justification / Rationale

New edition.

Effective Term

Fall 2019

Credit Status

Credit - Degree Applicable

Subject

BI - Biology

Course Number

014

Full Course Title

Human Anatomy and Physiology II

Short Title

ANAT & PHYS II

Discipline**Disciplines List**

Biological Sciences

Modality

Face-to-Face

Catalog Description

This course involves an integrated study of human body organization and function. Topics include the endocrine, immune, cardiovascular, respiratory, digestive, urinary and reproductive systems. This is the second part of a two-course sequence that studies the fundamental concepts of anatomy and physiology and provides a foundation for advanced study of the human body. Both BI 013 and BI 014 must be taken to study all of the major body systems. This two-course sequence is designed to meet the prerequisites for health professional programs; e.g. nursing, physical therapy.

Schedule Description

Second of a two course sequence that offers an in depth study of the human body. This course covers the endocrine, immune, cardiovascular, respiratory, digestive, urinary and reproductive systems. Prerequisite: BI 013 & CH 004 or CH 005 IGETC: 5B, 5C

Lecture Units

4

Lecture Semester Hours

72

Lab Units

1

Lab Semester Hours

54

In-class Hours

126

Out-of-class Hours

144

Total Course Units

5

Total Semester Hours

270

Prerequisite Course(s)

BI 013 & CH 004 OR

BI 013 & CH 005

Required Text and Other Instructional Materials**Resource Type**

Book

Open Educational Resource

No

Author

Marieb, Elaine N. and Hoehn, Katja

Title

Human Anatomy and Physiology

Edition

11th

City

San Francisco

Publisher

Pearson

Year

2019

College Level

Yes

Flesch-Kincaid Level

12

ISBN #

978-0134580999

Resource Type

Book

Author

Marieb, Elaine N. and Smith, Lori A.

Title

Human Anatomy and Physiology Laboratory Manual, Fetal Pig Version

Publisher

Pearson

Year

2016

College Level

Yes

ISBN #9781323357873

Class Size Maximum

28

Entrance Skills

Demonstrate a general understanding of chemistry including ions, inorganic and organic compounds, weak bonds, nomenclature and acid-base.

Prerequisite Course Objectives

CH 004-Describe the major categories of inorganic and organic chemical and biochemical reactions.
CH 004-Balance reactions and perform calculations based on balanced reactions.
CH 004-Explain Metric measurement and its importance in the physical science domain.
CH 004-Describe inorganic and organic nomenclature as applies to compound compositions.
CH 004-Describe the major functional groups of organic compounds.
CH 004-Explain oxidation-reduction in the process of metabolism.
CH 004-Describe the major groups of biological molecules and their essential functions in metabolism and heredity.

Entrance Skills

Demonstrate the ability to use appropriate anatomical and physiological terminology in discussing principles and relationships.

Prerequisite Course Objectives

BI 013-Use appropriate anatomical and physiological terminology in discussing principles and relationships.

Entrance Skills

Properly operate a compound light microscope.

Prerequisite Course Objectives

BI 013-Properly operate a compound light microscope.

Entrance Skills

Demonstrate an understanding of the structure and function of cellular structures and cellular transport processes.

Prerequisite Course Objectives

BI 013-Identify cellular structures and explain the function of cellular structures and cellular transport processes.

Entrance Skills

Recognize the structure and function of the four basic adult tissue types.

Prerequisite Course Objectives

BI 013-Compare and contrast the structure and function of the four basic adult tissue types.

Entrance Skills

Compare and contrast the structure and function of skeletal, cardiac, and smooth muscle.

Prerequisite Course Objectives

BI 013-Compare and contrast the structure and function of skeletal, cardiac, and smooth muscle.
BI 013-Explain skeletal muscle contraction from the events associated with the somatic motor neuron through the recocking of the myosin heads.
BI 013-Identify the major muscles of the body and state their points of attachment and actions.

Course Content

1. Structure and function of the endocrine system, including cell signaling pathways.
2. Components of blood and the function of formed elements and plasma proteins and electrolytes.
3. The innate and adaptive immune systems and mechanisms of protection.
4. Regulation of blood pressure and blood flow.
5. Regulation of the cardiac cycle and intrinsic conduction system of the heart.
6. Structure and function of the lymphatic system, including study of lymph nodes.
7. Anatomy of the respiratory system.
8. Gas exchange in the lungs and transport of respiratory gases in the bloodstream.
9. Cellular metabolism.
10. Functional anatomy of the digestive system and control of digestive processes.
11. Processing of nutrients and nutritional requirements.
12. Structure and function of the urinary system.
13. Fluid and electrolyte balance and acid-base chemistry.
14. Physiology of reproductive processes including regulation of reproductive cycles and gametogenesis.
15. Pregnancy and human development.

Lab Content

1. Gross anatomy of the vascular system.
2. Electrocardiogram.
3. Respiratory volumes and respiratory rates.
4. Respiratory anatomy.
5. Urinalysis and urinary anatomy.
6. Gross anatomy of the heart.
7. Heredity and Punnett squares.
8. Blood typing and blood transfusions.
9. Blood cell identification and blood cell counts.
10. Determination of blood pressure and valve sounds.
11. Processes of digestion.
12. Gross anatomy of the digestive system.

Course Objectives

	Objectives
Objective 1	Explain how hormones affect human physiology and draw out the signaling pathways used by different hormone types.
Objective 2	Compare and contrast the functions of various blood cells and plasma proteins.
Objective 3	Compare and contrast innate and adaptive mechanisms of immunity and explain the role of each type of white blood cell in immune protection.
Objective 4	Identify the location of major blood vessels and explain how blood pressure and blood flow are regulated.
Objective 5	Explain the microscopic and gross anatomy of the heart.
Objective 6	Explain the cardiac cycle and compare and contrast sympathetic and parasympathetic effects on the cardiac cycle.
Objective 7	Identify major lymph vessels and anatomical regions within the lymph node.
Objective 8	Explain how the lymph system interacts with the vascular system and how the processing of lymph contributes to immune system function.
Objective 9	Identify the structures of the respiratory system.
Objective 10	Explain gas exchange on both the organismal and cellular levels.
Objective 11	Compare and contrast cellular metabolic processes of different macromolecules.
Objective 12	Explain the functional anatomy of the digestive system and explain major digestive processes.
Objective 13	Identify structures of the urinary system and explain how the kidney processes plasma to produce urine.
Objective 14	Explain how the body regulates fluid volume, fluid osmolarity and regulation of fluid pH.
Objective 15	Compare and contrast the structure and function of the male and female reproductive systems.
Objective 16	Explain the affect of sex hormones on reproductive processes.

Objective 17 Explain physiological changes involved with pregnancy and explain the major steps involved with embryonic development.

Student Learning Outcomes

Upon satisfactory completion of this course, students will be able to:	
Outcome 1	Describe the structures and functions of the human cardiovascular system.
Outcome 2	Characterize the relationships between hormones and the body processes that they regulate.
Outcome 3	Describe the multifunctional roles of blood and the immune system in maintaining a healthy body.
Outcome 4	Explain how the digestive system, respiratory system, and urinary system act to provide the body with necessary compounds and work to remove waste products.
Outcome 5	Measure and analyze the physiological processes of other students using laboratory techniques.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Laboratory	Study of anatomical models and dissections. Use of BIOPAC to collect data related to human body function. Performance of experiments related to digestion and urinary function.
Lecture	Lecture format includes using the white board and PowerPoint. Multimedia displays of key biological phenomena.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Students apply and analyze concepts from the course in assignments that include short answers and multiple choice questions	Out of Class Only
Laboratory projects	Students complete assignments in which they need to evaluate and assess clinical scenarios.	In and Out of Class
Tests/Quizzes/Examinations	Exams and quizzes require students to identify anatomical structures and to interpret and describe physiological concepts covered in lab and in lecture.	In Class Only
Group activity participation/observation	Students work in small groups, to complete lab worksheets.	In Class Only

Assignments

Other In-class Assignments

1. Examinations consisting of multiple choice, true/false and essay questions.
2. Quizzes consisting of short answer questions.
3. Laboratory exercise data sheets.

Other Out-of-class Assignments

1. Homework assignments on lecture material.
2. Laboratory exercise sheets.

Grade Methods

Letter Grade Only

COD GE

C1 - Natural Sciences

CSU GE

B2 - Life Science

B3 - Laboratory Activity

IGETC GE

5B - Biological Science
5C - Science Laboratory

MIS Course Data**CIP Code**

26.0101 - Biology/Biological Sciences, General.

TOP Code

040100 - Biology, General

SAM Code

E - Non-Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Program Status

Program Applicable

Transfer Status

Transferable to both UC and CSU

C-ID

BIOL 115BS

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Approvals**Curriculum Committee Approval Date**

3/21/2019

Academic Senate Approval Date

3/28/2019

Board of Trustees Approval Date

5/17/2019

Course Control Number

CCC000343329

Programs referencing this coursePhysical Therapist Assistant AS Degree for Employment Preparation (<http://catalog.collegeofthedesert.eduundefined?key=222>)Liberal Arts: Math and Science AA Degree (<http://catalog.collegeofthedesert.eduundefined?key=29>)Public Health Science AS-T Degree (<http://catalog.collegeofthedesert.eduundefined?key=37>)Health Science AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=65>)Sports Medicine AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=67>)Registered Nursing AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=72>)Kinesiology AA-T Degree (<http://catalog.collegeofthedesert.eduundefined?key=8>)