

## ***BIOL 217 Human Anatomy & Physiology I and BIOL 217L Departmental Syllabus***

### ***A&P I Lecture and Lab Course Information***

**Lecture:** 3 credits (150 min. per week)

**A&P Laboratory:** 1 credit (2 hours 50 min. per week)

Lecture and Lab are corequisites and must be taken concurrently.

- BIOL 217–218 is a **Group I** Biology elective. Both semesters of the sequence should be completed for the course to apply toward the Biology, Biomedical Science, or Natural Science major or the Biology minor.

### ***Catalog Description:***

#### **BIOL 217. HUMAN ANATOMY AND PHYSIOLOGY I**

The first half of a study of the various levels of organization of the human body. The first semester covers cells, cell metabolism, tissues and the integumentary, skeletal, muscular, nervous, sensory, and endocrine systems. Prerequisite: BIOL 111 and 112, BIOL 112L and CHEM 113 or higher; Corequisite: BIOL 217L. Offered in the Fall semester. *One semester; three credits.*

#### **BIOL 217L. HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY**

Laboratory experience to illustrate and explain the principles covered in BIOL 217. Dissection of a preserved mammalian specimen is required. Prerequisite or corequisite: BIOL 217. Offered in the Fall semester. *One semester; one credit*

### ***Objectives:***

The Biol 217–218 two-semester course sequence offers a comprehensive study of human anatomy and physiology at the cell, tissue, and organ system levels of organization. If you take A&P, you need to take both semesters and the labs. The first semester topics include anatomical terminology, cells, cell metabolism, tissues, and the integumentary, skeletal, muscular, nervous, sensory, and endocrine systems. Dissection of preserved mammalian specimens is required.

The A&P course is designed for pre-pharmacy, pre-nursing, pre-physical therapy and other allied health students as well as students preparing for secondary school teaching in biology. The Biol 217-218 course sequence is required for Biochemistry majors. Biol 217 is designed to be taken first semester of the sophomore year.

***Prerequisites:*** BIOL 111 and BIOL 112 (Principles of Biology I and II and labs) and CHEM 113 (Principles of Chemistry I and lab) are prerequisites for BIOL 217 and BIOL 217L. BIOL 217 and BIOL 217L are prerequisites for BIOL 218 and BIOL 218L (offered Spring semester).

### ***Prerequisites by Topic:***

The student should have developed the reading, writing, and study skills required to begin college sophomore level course work in biology. The prerequisite year of college biology with laboratory should include an introduction to the evolution, cell biology, anatomy, physiology, genetics, and development of vertebrates. The prerequisite course should also include the use of compound and dissecting microscopes, identification of animal tissues and organs from microscope slides and photomicrographs, interpreting detailed diagrams of vertebrate anatomy, and dissection of the organ systems of a representative vertebrate.

**Text:** Shier, Butler, and Lewis. 2010. *Hole's Human Anatomy and Physiology*, 12<sup>th</sup> ed. McGraw-Hill Book Co. ISBN 9780077276188  
[11<sup>th</sup> ed. 2007 ISBN 9780073213644. Either the 11<sup>th</sup> or 12<sup>th</sup> edition is acceptable.]

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**Laboratory Manual:** Marieb, Elaine and Susan Mitchell. 2008. *Human Anatomy and Physiology Laboratory Manual: Cat Version*. Ninth ed. update. ISBN-10: 0321535979 ISBN-13: 9780321535979 (Includes PhysioEx CD and access to on line Practice Anatomy Lab and "myA&P" companion website)

**Supplement (or handouts):** Lab guides and some additional lab protocols.

**Medical Dictionary:** For example: Stedman, Thomas L. 2005. *Stedman's Medical Dictionary* (28<sup>th</sup> ed.) Lippincott Williams & Wilkins. ISBN 978-0781733908

**Disposable gloves** (latex or nitrile examination gloves) will be needed for most of the lab sessions.

**Teacher Education Program:**

The Biol 217, Biol 217L, Biol 218, Biol 218L course sequence includes the following knowledges and skills required for teacher licensure by the Tennessee Department of Education:

Understanding of how scientists and technologists create, describe, disseminate, and refine new knowledge within their disciplines.

Ability to apply scientific methods in appropriate situations.

Ability to identify and demonstrate the processes of science common to the scientific fields, including observing, investigating phenomena, interpreting findings, and communicating results.

Ability to use basic problem solving skills such as identifying, postulating and evaluating, planning and acting, and assessing results.

Understanding the structure and function of the human body.

Ability to operate laboratory instrumentation, including the compound and stereoscopic (dissecting) microscopes.

Understanding of and ability to use the metric system of measurement.

Understanding of cell theory, structure of the cell, and cellular reproduction and genetics, including the progressive and developmental structure of living things.

<u>Lecture Topic (Text Ch.)</u>	<u>Weekly Laboratory Marieb Ex. and other materials</u>	<u>Text Chs. for Lab</u>
<b>Lecture Unit 1:</b> Anatomical Terms (1) Chemicals of Life (2)	[1] <b>Ex. 1, 2, 8</b> <u>Anatomical Terms, Body Cavities</u> ; Practice Moodle quiz, \\facstaff\biology and other Course Resources.	1. Anatomical Terminology and Reference Plates
Chemicals of Life (2) Cells (3)	[2] <b>Ex. 3, 4,</b> <u>Microscopy, Cell Structure, Mitosis</u>	2. CT scans and PET Imaging 3. Cells
Cells (3) Lab Review	[3] <b>Ex. 5A, 5B, 37A</b> <u>Osmosis, pH, Buffers</u>	2. pH, Buffers 3. Cells, Osmosis
<b>Lecture Unit 2:</b> Cell Metabolism (4)	[4] <b>Ex. 6A, 6B, 7</b> <u>Tissues, Integument</u> ; digital images	5. Tissues 6. Skin and Integument
Cell Metabolism (4) Tissues (5)	[5] <b>Ex. 9, 10, 12</b> <u>Bone and Skeleton: Skull</u>	7. Skeletal System, Skull
Tissues and Skin (5-6) Integument (6)	[6] <b>Ex. 11, 12, 13</b> <u>Skeleton and Joints</u>	7. Skeletal System 8. Joints
<b>Lecture Unit 3:</b> Skeletal System (7)	[7] <b>Midterm Lab Exam</b> <b>Diss. Ex. 1</b> Start Cat Muscles.	

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Bone Development (7) Joints (8) Muscular System (9)	[8] <b>Diss. Ex. 1, Ex. 15</b> <u>Muscle Anatomy</u>	9. Muscular System
Muscular System (9)	[9] <b>Ex. 15, 14</b> <u>Muscle Anatomy</u> , DVD's, Interactive Physiol. CD	9. Muscular System
<b>Lecture Unit 4:</b> Nervous System (10-11)	[10] <b>Ex. 14, 16A, 16B</b> <u>Muscle Physiol.</u> Biopac and PhysioEx	9. Muscular System
Nervous System (10-11)	[11] <b>Ex. 17, 21, 22</b> <u>NS Histology</u> , Spinal Cord, Reflexes and Reaction time (Biopac L 11)	10. Nervous System I 11. Nervous System II
Nervous System (10-11)	[12] <b>Ex. 19, 20</b> <u>Brain Anatomy &amp; Function</u> . Models, sheep brain dissection, EEG (Biopac)	11. Nervous System II
Nervous System (10-11)		
<b>Lecture Unit 5:</b>		
Somatic & Special Senses (12)	[13] <b>Ex. 24</b> <u>Eye</u> , <b>Ex. 25</b> <u>Ear</u> , <b>Ex. 23, 26</b> Other Senses.	12. Somatic & Special Senses
Endocrine System (13)	[14] <b>Ex. 27</b> <u>Endocrine Glands</u> . Histology and Function	13. Endocrine System
<b>Comprehensive Lecture Final</b>	<b>Final Lab Exam</b>	