

SUNY COLLEGE AT OLD WESTBURY

BIOLOGICAL SCIENCES PROGRAM

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Course Info can be found at www.schwartzinfo.com
Class Meets Mon/Tues/Wed/Thurs from 9:00AM to 11:30AM in NSB – S-

BS – 2300, Human Anatomy & Physiology 1 **Lecture Component - 3 Credits** **Summer 2018**

Human Anatomy and Physiology 1 and 2 comprise a two-semester series of courses studying human anatomy and physiology. The concept of the relationships between Form and Function is stressed throughout the course and is used to explain concepts at the gross and microscopic levels. In addition, the study of homeostatic mechanisms is used to describe the control of the various systems, as well as the concept of the failure of homeostasis leading to disease states.

Human Anatomy and Physiology 1 consists of a lecture component, BS-2300 (3 credits) and a laboratory component, BS-2301 (1 credit). Human Anatomy and Physiology 2 also consists of a lecture component, BS-2310 (3 credits) and a laboratory component, BS-2311 (1 credit). Students registering for BS-2300 must also register for BS-2301 during the same semester. Students registering for BS-2310 must also register for BS-2311 during the same semester. BS-2300 and BS-2301 are prerequisites for BS-2310 and BS-2311.

Please note that these courses are required for entry into many programs in Physical Therapy, Nursing, Physician's Assistant, Dental Technician, and other Allied Health Professional Programs and as such they will be taught at a level commensurate with ensuring proficiency.

Required text: Anatomy & Physiology: The Unity of Form and Function by Saladin, Most Recent Edition,

Laboratory Manual for Human A&P: Fetal Pig Version w/PhILS 4.0 Access Card by Martin, most current edition.

The most cost effective method to get these materials is the package the Bookstore is stocking which has Saladin's 2-semester access of Connect including full E-Book packaged within the Martin Lab Manual with PhILS access. McGraw Hill Higher Education ISBN # 9781307166316.

There are required online PhILS assignments that you will need to complete for lab. In addition there are assignments and quizzes as part of the Lecture component so you will need the Phils access and the Connect access codes. There is a full E-Book version of the textbook included as part of the connect access. Once you have access to the Connect materials, at your own option you can purchase a full color printed loose leaf version of the text book and have it sent to you for a nominal fee.

It is expected that you will have familiarized yourself with the lecture or lab topics before each scheduled lecture or lab. There will be in-class quizzes in Lecture and in Lab so preparation is paramount to being successful in the course.

Remember. There will be no extra credit assignments that you can complete towards the end of the course to raise grades that are lower than you hoped for. It is highly recommended that you stay on track with the material and study regularly so that you can **earn** the grade that you want or need.

Grading: The average of three non-cumulative unit exams along with a cumulative final examination and quizzes and other assignments will determine the grade for the lecture component of the course.

Attendance: Regular attendance at the lectures is expected.

Make-up exams: Students are strongly encouraged not to miss any examinations. In the event that an emergency arises and a student must miss an exam he/she should speak with the professor ahead of time or as early as practicable. Make up exams may be offered at the discretion of the professor and will most likely be a different format exam covering the same material.

It is the student's responsibility to be aware of lecture and/or lab schedule changes, exam dates and any other announcements that may be made regarding the course.

Please be certain that all electronic devices are in silent mode and do not cause any distractions. Activities such as text messaging during class or any device related activities other than following online course materials is strictly prohibited. Students participating in such activities will be asked to leave the classroom to avoid any further distractions.

Use of electronic devices are also prohibited during all examinations and quizzes. Any student who is found to be violating this policy will receive a zero for that exam. Repeated violations may result in removal from the class.

BS-2300 Learning Objectives and Lecture Outline

A. Body Cavities, Body Planes, Directional Anatomical Terminology and General Introduction to Anatomy and Physiology and the Scientific Method

Upon successful completion of this unit the student shall demonstrate understanding of the what the Study of Anatomy and Physiology entails, including it's history and significant historical perspectives, Students shall understand the differences between Microscopic and Macroscopic Study of Anatomy, the hierarchical organization of the Human Body and the concept of the Unity of Form and Function in studying Physiology. Students shall be able to use and understand descriptive anatomical and directional terminology, know the various body planes and cavities and demonstrate an understanding of the Scientific Method.

B. Homeostasis

Upon successful completion of this unit students shall be able to demonstrate an understanding of the basic concept of homeostasis, negative and positive feedback mechanisms and how homeostatic mechanisms apply to normal body function and disease.

C. Basic Chemistry of the Human Body

Upon successful completion of this unit students shall be able to demonstrate an understanding of the structure and parts of an atom along with a basic knowledge of ions, isotopes, polar and non polar molecules, acids, bases and buffers and various types of bonding.

D. Macromolecules and the Human Body

Upon successful completion of this unit students will demonstrate a basic understanding of the various classes of Macromolecules making up and important to the function of the Human Body, Students shall be able to describe the concepts of polymers and monomers as well as how various Macromolecules are synthesized and broken down as well as general structures of each and what they are used for in the Human Body.

E. Cellular Structure and Composition

Upon successful completion of this section of the course students shall be able to describe and identify cellular structures and explain their functions. Students shall understand the composition and structure of the cellular membrane and be able to explain and understand the differences between the various methods of membrane transport.

F. Cellular Functions and Life Processes

Upon successful completion of this section of the course students shall be able to describe the processes of cellular respiration, cellular reproduction, gamete formation and basics of inheritance. Students will be able to explain the concepts of DNA Replication, Transcription and Translation.

G. Introduction to Tissues

Upon successful completion of this unit students shall be able to describe and identify the basic tissues of the body, where they are found and explain their functions.

H. Integumentary System (Skin)

Upon successful completion of this section of the course students will be able to demonstrate an understanding of the functions of the system as well as being able to identify and describe the various layers of the skin, the make-up and development of the skin as well as major gross and microscopic components of the integumentary system.

I. Skeletal System

Upon successful completion of this section of the course students shall be able to identify and describe the development of and repair of as well as the major gross and microscopic components of the skeletal system. The student will be able to explain the functions of the system, the various types of articulations and diseases affecting the system.

J. Muscular System

Upon successful completed of this section of the course students shall be able to identify and describe the major gross and microscopic components of the muscular system, understand the physiologic basis of contraction and explain the various types of muscle twitches and contractions, and diseases affecting the system.

K. Nervous System

Upon successful completion of this section of the course students shall be able to identify major gross and microscopic components of the nervous system as well as explaining the physiologic basis of nerve conduction, promulgation, and synaptic transmission. The student shall also be able to explain the structure and functions of various parts of the central and peripheral nervous systems and diseases affecting the system.

L. Special Senses

Upon successful completion of this section of the course students shall be able to identify major gross and microscopic components of the eye and ear and explain in depth the physiologic basis of vision, hearing and equilibrium. The student shall also be able to identify the olfactory and gustatory receptors and be able to briefly describe the physiologic basis of smell and taste.

LECTURE OUTLINE

- I. Homeostasis
- II. Biochemical Molecules
 - A. Water
 - B. Electrolytes
 - C. Carbohydrates
 - D. Lipids
 - E. Proteins
 - F. Nucleic Acids
- III. The Cell
 - A. Cellular Membranes
 - B. Cellular Organelles
 - C. Transport Mechanisms
 - 1. Passive Transport
 - 2. Active Transport
 - D. Transmembrane Potential
 - E. Cell Cycle
 - 1. Replication
 - 2. Transcription
 - 3. Translation
 - 4. Mitosis
 - F. Cellular Respiration
 - 1. Glycolysis
 - 2. Citric Acid Cycle
 - 3. Electron Transport System
- IV. Tissues
- V. Integument (Skin)
- VI. The Skeleton
 - A. Bone Structure
 - B. Bone Development
 - C. Articulation
 - D. Lever Systems
- VII. Neuromuscular Membrane Physiology
 - A. Excitatory/Action Potential
 - B. Membrane Conduction
 - C. Synapse/Neuromuscular Junction
- VIII. Skeletal Muscles
 - A. Structure
 - B. Sarcomere Contraction
 - C. Twitch
- IX. Nervous System
 - A. Reflexes
 - B. Brain and Spinal Cord
 - C. Autonomic Nervous System
 - D. Special Senses

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POLICY ON ACADEMIC INTEGRITY

Administered by the Office of Academic Affairs

As is the policy of all SUNY institutions, students are expected to maintain the highest standards of honesty in their college work. Any act which attempts to misrepresent to an instructor or College official the academic work of the student or another student, or an act that is intended to alter any record of a student's academic performance by unauthorized means, constitutes academic dishonesty. Cheating, forgery and plagiarism are considered serious offenses and are subject to disciplinary action.

Cheating

Cheating is defined as giving or obtaining information by improper means in meeting any academic requirements. Examples of cheating, although not inclusive, include: unauthorized giving or receiving of information for an examination, paper, laboratory procedure, or computer assignment (file or printout); taking an examination for another student or allowing another student to take an examination for you; altering or attempting to alter a grade either on graded work or in an instructor's records or on any College form or record.

Forgery

Forgery is defined as the alteration of college forms, documents, records, or the signing of such forms or documents by someone other than the proper authority.

Plagiarism

Plagiarism is defined as the use of material from another author whether intentional or unintentional, without referencing or identifying the source of the material. If students have any questions as to what constitutes plagiarism, it is their responsibility to get clarification by consulting with the appropriate instructor.

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS:

If you have or suspect you may have a physical, psychological, medical or learning disability that may impact your course work, please contact Stacey DeFelice, Director, The Office of Services for Students with Disabilities (OSSD), NAB, 2065, Phone: 516-628-5666, Fax (516) 876-3005, TTD: (516) 876-3083. E-mail: defelices@oldwestbury.edu. The office will help you determine if you qualify for accommodations and assist you with the process of accessing them. All support services are free and all contacts with the OSSD are strictly confidential. SUNY/Old Westbury is committed to assuring that all students have equal access to all learning activities and to social activities on campus.