Hagerstown Community College
OFFICIAL COURSE SYLLABUS DOCUMENT
Fall 2015

COURSE
BIO 103: Human Anatomy and Physiology I, 4 credits

BIO-103 Human Anatomy and Physiology I
This is the first semester of an integrated course on the structure and function of human body systems and processes. It is required for allied health programs and appropriate for biology and related pre-professional fields. The course includes cell biology, biochemistry, histology and the endocrine, nervous, skeletal, muscular and integumentary systems. Laboratory fee required. 45 hours of lecture and 45 hours of lab. Prerequisites: ENG 099 and MAT 099 or appropriate scores on placement test; high school chemistry or CHM 101 and a passing score on the anatomy/physiology placement examination. This may require the completion of BIO 099 or a four-credit college biology course. Semesters offered: Fall, Spring. 4 Credits

Total Hours of Coursework:
To earn one academic credit at HCC, students are required to complete a minimum of 37.5 clock hours (45 fifty-minute "academic" hours) of coursework per semester. Those hours of coursework may be completed through a combination of hours within the classroom and hours outside the classroom. Certain courses may require more than the 37.5 minimum hours of coursework per credit.

For most classes, students should expect to do at least 2 hours of coursework outside of class for each hour of in-class coursework.

INSTRUCTOR
T. Bidle, M. Jozik

TEXTBOOK
Human Anatomy and Physiology, McKinley, O'Loughlin, and Bidle ISBN: 9780077927042
Human Anatomy and Physiology Lab Manual, Terri Bidle (Available at HCC Bookstore)
Anatomy and Physiology Coloring Book (Optional)

STUDENT LEARNING OUTCOMES
Upon completion of Human Anatomy and Physiology I, students will:
1. Exhibit the ability to use core content of the Anatomy and Physiology curriculum
2. Apply physiological and anatomical principles to the diseased state.
3. Demonstrate transfer of information from diagrams, models and non-human models to the human organism.
4. Students will be able to access, process, analyze and synthesize scientific information.

COURSE CONTENT OBJECTIVES:
1. Students will be able to use and understand descriptive **anatomical and directional terminology.**
2. Students will be able to explain the basic concept of **homeostasis** and how homeostatic mechanisms apply to body systems.
3. Students will be able to relate **chemical concepts** to physiology.

4. Students will be able to relate **specialization of differentiated cells to differences in function.**
5. Students will understand the relationship between **genes** (DNA), gene transcripts (RNA), gene products (proteins) and cell differentiation and function.
6. Students will be able to describe the basic **tissues** and membranes of the body, their location, and explain their functions.
7. Students will be able to identify and describe gross and microscopic anatomical components of the **endocrine system** and explain the functional roles of their respective hormones in communication, control, and integration.
8. Students will be able to identify and describe the major gross and microscopic anatomical components of the **nervous system** and explain their functional roles in communication, control, and integration.
9. Students will be able to identify and describe the major gross and microscopic anatomical components of the **special senses** and briefly describe the physiology involved in their function.
10. Students will be able to identify and describe the major gross and microscopic anatomical components of the **skeletal system** and explain their functional roles in osteogenesis, repair, and body movement.
11. Students will be able to identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture, and heat production.
12. Students will be able to identify and describe the major gross and microscopic anatomical components of the **integumentary** system and describe the functions of the system.

Minimum Clock Hours Required for this Course

Reading/studying for lecture exams	Weekly quizzes/exams x 4 hr/week = 60
Reading/studying for laboratory exams	Quizzes/Exam x 3 hours/week = 45
Homework and other assignments	10 hours
Total out of class time	**115 hours**

ASSESSMENT PROCEDURES

Lecture …….....75% of grade
4 exams
Cumulative exam
Quizzes
Lab…… 25% of grade

A 100%-90%, B 89% - 80%, C 79% -70%, D 69%-60% F 59% and below

<u>Minimum</u> Clock Hours Required for this Course

Component of Course	Hours In Class/Lab	Hours/Item Outside of Class	Total Hours/Semester Outside of Class
Lecture	**37.5 hours**		
Quizzes		2 hours/lecture	**60 hours/semester**
Units Exams		12.5 hours/exam	**50 hours/semester**
Cumulative exam		7.5 hours/exam	**7.5 hours/semester**
Laboratory	**41.25 hours**		
Unit laboratory assessment		2.5 hour/lab	**30 hours/semester**
Laboratory Final		10 hours/lab exam	**10 hours/lab exam**
Total	**78.75 hours**		**157.5 hours**

TOPICAL OUTLINE

Lecture and Laboratory Schedule
UNIT ONE
Chemistry, Cells, Tissues, and Organs

Week	Date	Lecture	Laboratory
1	Aug 24/25	**Introduction to Anatomy and Physiology**	**Lab: Chemistry**
	Aug 26/27	**Homeostasis/Anatomical Terminology**	Complete outline on *Chemistry* BEFORE lab. *Lab quiz – Chemistry*
2	Aug 31/ Sept 1	**Enzymes, Energy, Chemical Reactions, Cell Respiration**	**Lab: Cell Model Building**
	Sept 2/3	**Cell Respiration (cont)**	Complete outline on the *Cell* BEFORE lab. *Lab quiz – Cellular Structure and Function*
3	Sept 7/8	**Labor Day** (No *lecture* class Monday or Tuesday)	**Lab: Tissues-Epithelial, Muscular, and Nervous** Complete outline on *Tissues* (through nervous tissue) BEFORE lab.
	Sept 9/10	**Cells: Introduction/Membrane Transport**	*Lab quiz – Tissues-Epithelial, Muscular, and Nervous* (Note: Monday's 11:30-2:15 lab students must attend another laboratory session this week.)
4	Sept 14/15	**Cells: Nucleus and Protein Synthesis**	**Lab: Connective Tissue and Organs**
	Sept 16/17	**Cells: Cellular Division Tissues/Organs/Membranes/Glands**	Complete outline on *Tissues* (through the end) BEFORE lab. *Lab quiz – Connective Tissue and Organs*
		EXAM 1 – complete in the testing center by Sunday at 4:00 p.m. (September 20th)	

Lecture and Laboratory Schedule
UNIT TWO

Endocrine System and Neuron Anatomy and Physiology

Week	Date	Lecture	Laboratory
5	Sept 21/22	**Endocrine System: A Control System**	**Lab: Dissection and the Endocrine System**
	Sept 23/24	**Endocrine System: Hypothalamus and Pituitary Gland**	
6	Sept 28/29	**Endocrine System: Lipid-soluble vs. Water-soluble Hormones**	Lab quiz – *Dissection/Endocrine*
	Sept 30 Oct 1	**Nervous System: Neuron Anatomy**	**Lab: Endocrine System Activity**
7	Oct 5/6	**Nervous System: Neuron Physiology**	Lab quiz – *Endocrine System Activity*
	Oct 7/8	**Nervous System: Neuron Physiology (cont)**	**Lab: Human Brain Models**
		EXAM 2 – complete in the testing center by Sunday at 4:00 p.m. (October 11th)	

Lecture and Laboratory Schedule
UNIT THREE

Nervous System and Sensory Receptors

Week	Date	Lecture	Laboratory
8	Oct 12/13	**Nervous System: The Brain**	Lab quiz – *Human Brain Models*
	Oct 14/15	**Nervous System: Protection of the Brain and Cranial Nerves**	**Dissection: Sheep Brain Cranial Nerves**
9	Oct 19/20	**Nervous System: Spinal Cord and Spinal Nerves**	Lab quiz – *Sheep Brain and Cranial Nerves*
	Oct 21/22	**Nervous System: Autonomic Nervous System**	**Lab: Spinal Cord and Spinal Reflexes** **Questions: Somatic: Sensory/Motor Pathways**
10	Oct 26/27	**Nervous System: Sensory Receptors – Introduction, General Senses, and Special Senses (Smell and Taste)**	Lab quiz: *Spinal Cord and Reflexes* **Lab: Receptors (six lab activities)**
	Oct 28/29	**Nervous System: Visual Receptor - The Eye**	
11	Nov 2/3	**Nervous System: Auditory and Equilibrium Receptors - The Ear**	Lab quiz – *Receptors*
	Nov 4/5	**Nervous System and Sensory Receptors**	**Lab: Bone Structure and Tissue** **Lab: Skeletal System - Introduction Lab: Skeletal System-Skull**
		EXAM 3 – complete in the testing center by Sunday at 4:00 p.m. (November 8th)	

Lecture and Laboratory Schedule
UNIT FOUR

Skeletal, Muscular, and Integumentary Systems

Week	Date	Lecture	Laboratory
12	Nov 9/10	**Skeletal System: Introduction and Histology**	Lab quiz – *Skeletal System - Bone Tissue; Introduction, and skull*
	Nov 11/12	**Skeletal System: Articulations**	**Lab: Skeletal system: Vertebral Column and Rib Cage** **Lab: Appendicular Skeleton**
13	Nov 16/17	**Skeletal Muscle Tissue**	Lab quiz – *Vertebral Column & Rib Cage; Appendicular Skeleton*
	Nov 18/19	**Skeletal Muscle Tissue (metabolism, muscle fibers, muscle tension), Smooth Muscle, Cardiac Muscle**	**Lab: Muscle Tissue** **Lab: Muscular System Organization and Muscle Identification**
14	Nov 23/24	**Integumentary System**	No laboratory (week of Thanksgiving); Review for lab practical in Learning Support Center
	Nov 25/26	**Thanksgiving**	
15	Nov 30 Dec 1	**Exam 4 (in-class)**	Lab quiz – *Muscle Tissue and Muscular System Organization and Muscle Identification*
	Dec 2/3	**Review for Cumulative exam**	**Review for lab practical exam**
16	Dec 7-10	**Cumulative exam** **(To be completed in the testing center)**	**Lab Practical Exam**

Instructor reserves the right to modify the syllabus as deemed necessary.

Services for Students with Special Needs: Students who have special needs are encouraged to identify themselves to the coordinator of special student services as early as possible. Reasonable accommodations based on current documentation are provided to qualified students.

CONTACT INFORMATION

Rebecca Beecroft (rabeecroft@hagerstowncc.edu) 240-500-2491 (STEM 415)
Cindy Dove (cadove@hagerstowncc.edu) 240-500-2477 (STEM 419)
Dave Karstaedt (dekarstaedt@hagerstowncc.edu) 240-500-2433 (STEM 421)
Bernard Murphy (bfmurphy@hagerstowncc.edu) 240-588-2311 (STEM 417)
Terri Bidle (tsbidle@hagerstowncc.edu) 240-500-2241 (STEM 420)
Maria Jozik (mejozik@hagerstowncc.edu)