

**RARITAN VALLEY COMMUNITY COLLEGE  
ACADEMIC COURSE OUTLINE**

**BIOL 124 - Human Anatomy and Physiology I**

**I. Basic Course Information**

- A. Course Number and Title: BIOL 124 – Human Anatomy and Physiology I
- B. New or Modified Course: Modified
- C. Date of Proposal: Semester: Fall Year: 2020
- D. Effective Term: Fall 2021
- E. Sponsoring Department: Science and Engineering
- F. Semester Credit Hours: 4
- G. Weekly Contact Hours: Lecture: 3  
Laboratory: 3  
Out of class student work per week: 7.5
- H. Prerequisites: Two years of college preparatory laboratory science or equivalent
- I. Laboratory Fees: NO
- J. Name and Telephone Number or E-Mail Address of Department Chair and Divisional Dean at time of approval:  
Department Chair: Ed Carr, [Edward.Carr@raritanval.edu](mailto:Edward.Carr@raritanval.edu)  
Divisional Dean: Sarah Imbriglio, [sarah.imbriglio@raritanval.edu](mailto:sarah.imbriglio@raritanval.edu)

**II. Catalog Description**

Prerequisite: Two years of college preparatory laboratory science or equivalent.

This course is an in-depth study of the structure and function of the human body. The course content highlights the chemical, cellular and tissue levels of organization, and the anatomy and physiology of the integumentary, skeletal, muscular and nervous systems. In the laboratory students will examine models and preserved specimens, and conduct physiological as well as computer simulated experiments. Students that successfully complete this course will be able to identify relevant anatomical structures and integrate this knowledge with a physiological understanding of the systems covered in this course.

Completion of Human Anatomy and Physiology II (BIOL 125) may be required for transfer of credits. The Honors Option is available for this course.

### **III. Statement of Course Need**

- A. This course serves as a prerequisite for nursing RN/PN/AD programs and the Occupational Therapy Assistant program. It is a required course in the Exercise Science and is a general education lab science elective. Students who complete this course and the subsequent course in the sequence, Human Anatomy and Physiology II, will have a firm foundation of understanding of the structure and function of the human body.
- B. This course requires a lab component so that students have the time and proper equipment for studying anatomical models, histology slides and specimens, and for performing physiological experiments and procedures. The programs for which it is a prerequisite/requirement require a laboratory component and having the lab increases the transferability of the course.
- C. This course generally transfers as a program requirement or a free elective.

### **IV. Place of Course in College Curriculum**

- A. Free elective.
- B. This course serves as a General Education course in Science with Lab.
- C. This course meets a pre-requisite requirement for the Nursing RN/PN/AD programs
- D. This course meets a program requirement for Exercise Science, Health Science, AS; Dance, AFA; Exercise Science - Option in Sports Management, AS; and Exercise Science - Option in Sports Medicine and Rehabilitation, AS.
- E. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, [www.njtransfer.org](http://www.njtransfer.org); b) for all other colleges and universities, go to the individual websites.

### **V. Outline of Course Content**

- A. Introduction
  - 1. Anatomical Terminology
  - 2. Body Cavities
  - 3. Organ Systems overview
- B. Chemistry
- C. Cells
- D. Tissues
- E. The Integumentary System
- F. The Skeletal System Gross Anatomy
  - 1. Bone tissue structure and physiology
  - 2. Anatomy of the Skeleton
- G. Joints
- H. The Muscular System

1. Muscle tissue structure and physiology
2. Anatomy of Muscular System with Muscle Function
- I. The Nervous System
  1. Nervous tissue Structure and Physiology
  2. Anatomy and Physiology of the Central Nervous System
  3. The Peripheral Nervous System
    - a. Anatomy of Spinal and Cranial Nerves
    - b. Spinal Reflexes
  4. The Autonomic Nervous System Anatomy and Physiology

## **VI. General Education and Course Learning Outcomes**

### **A. General Education Learning Outcomes:**

**At the completion of the course, students will be able to:**

1. Use working vocabulary of appropriate terminology in the systems covered (Core SLO)
2. Identify structure of the systems covered (Core SLO)
3. Differentiate among various histological body tissue samples (Core SLO)
4. Explain the function of the organs within a particular system and their importance to that system's function and to maintaining homeostasis (Core SLO)
5. Correlate structure and function relationships within a particular system (Core SLO)
6. Integrate knowledge of anatomical and physiological functions of the entire body\* (Core SLO)
7. Utilize concepts of the scientific method investigating laboratory/clinical data\* (Core SLO)

(\*embedded critical thinking)

### **B. Course Learning Outcomes:**

**At the completion of the course, students will be able to:**

1. Identify important anatomical structures of cells and tissues and of the Integumentary, Skeletal, Muscular and Nervous System.
2. Demonstrate understanding of physiological mechanisms involved in cell, tissue and organ function.
3. Use traditional laboratory and technological tools to examine anatomical features, study physiological processes and acquire, and interpret physiological data.

### **C. Assessment Instruments**

- A. Theoretical Exams
- B. Practical Exams

- C. Group lab work/projects
- D. Laboratory Simulations
- E. Online programs

## **VII. Grade Determinants**

- A. Lecture exams and quizzes
- B. Laboratory exams and quizzes
- C. Individual lecture and laboratory assignments
- D. Research projects and/or collaborative projects in or out of class
- E. Class participation and/or preparation
- F. Discussion questions

Primary formats, modes, and methods for teaching and learning that may be used in the course:

- A. lecture/discussion
- B. small-group work
- C. computer-assisted instruction
- D. laboratory
- E. student oral presentations
- F. student collaboration
- G. independent study
- H. service learning

## **VIII. Texts and Materials**

- A. suggested textbook
  - *Human Anatomy and Physiology*, E.N. Marieb, K. Hoehn (most recent edition, Pearson).
  - *Human Anatomy and Physiology Laboratory Manual: Fetal Pig Version*, E.N. Marieb and S.J. Mitchell (most recent edition)
- B. primary resources
- C. web sources: Mastering Anatomy and Physiology (Pearson)
- D. computer-based sources: Physio-Ex, simulation software, Interactive Physiology, PAL (Pearson)
- E. other (at discretion of instructor)

Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.

## **IX. Resources**

- A. Anatomy laboratory with computers and equipment
- B. School computer labs for access to web resources

C. Text books and software on reserve at library.

## **X. Honors Options**

Prerequisites: Minimum GPA of 3.5 and permission of the instructor.

The Honors option for the course requires that the students not only use usual library resource in to research a topic relevant to the course they will also have to use databases specific to medical research. Using the databases will teach them how to search for relevant articles and critically evaluate their quality and usefulness. Both of the potential projects require that the student engage the material at a deeper level than the regular coursework and require that the student read peer-reviewed medical journal articles as opposed to books, websites and other non-peer reviewed science interest magazines. When reading article students are encourage to evaluate the data in the articles rather than reading information presented as fact in a textbook. Both options also require that the student write a paper/report exceeding in length and depth any of the normal coursework.

### A. General Education and Course Learning Outcomes:

Upon completing the honors option, students will be able to:

1. Show competency in a literature search, and demonstrate the ability to summarize, evaluate, and properly cite sources (NJ GE IL).
2. Develop and present a research project that discusses the causes, symptoms and possible treatments for a particular disease. (NJ GE 1).

### B. Honors Option Content: (2 options at discretion of instructor)

- a. Students will be given a case study for a body system. They will then have to research the case, arrive at a possible diagnosis and present their findings in written report which should include ample background on the system(s) involved in the case, the condition diagnosed and possible treatments.
- b. Student will be given a pathological condition to research. They will then generate a report that includes an overview of the system affected, the details of the pathological condition and a discussion of possible treatment options.

### C. Assessment Instruments for Honors Option Work

- a. Weekly progress updates/timeline
- b. Bibliography
- c. Paper/Report outline
- d. Final paper (ability to address editorial concerns)

### D. Grade Determinants for Honors Option Work

All grade determinants for non-honors section would apply as well as:

- a. Ability to meet progress deadlines through the semester
- b. Final written report/paper/presentation