

Piedmont Technical College

Course Information Sheet

Course Title: Human Anatomy and Physiology II

Course Prefix/Number: BIO 211

COURSE-SPECIFIC GRADE CALCULATION

Advanced notification of any changes will be provided to the student.

Letter grades are assigned according to the numerical average achieved using the following scale: **A = 90-100; B = 80-89; C = 70-79; D = 60-69; F = 59 and below; W = Withdrew.**

The Numerical Average will be determined by the following:

- 12%- Each for Lecture Exams 1-5 (60% total): The single lowest exam from Exams 1-4 can be replaced by the mandatory cumulative final Exam 5*.
- 10%- Lab Exam 1
- 10%- Lab Exam 2
- 10%- Weekly Lab Quizzes/Assignments/Reports: There are no makeups allowed for missed lab quizzes, assignments or reports.* (The single lowest lab assignment, quiz or report grade will be dropped.)
- 5%- Connect Quiz Grade (average grade obtained from quizzes for each chapter completed in Connect)
- 5%- Homework and Class Participation (participation grade and may include, Connect Homework assignments, graded homework, pop quizzes, online projects, graded discussion, class participation, and/or oral presentation.)

*The lowest exam grade from lecture Exams 1- 4 will be replaced with Exam 5 grade. Exam 5 will be cumulative, with about half of the questions coming from Units 1-4, and about half of the questions coming from Unit 5 material.

*any lecture exam grade(s) assigned a zero as a result of academic misconduct will not be replaced with the Lecture Exam 5 grade.

* Under extenuating circumstances if a second lecture exam or lecture Exam 5 is missed, then a make-up exam may be permitted. All make up exams will consist mostly of, fill in the blank and short essay questions, and will be graded on spelling, punctuation, and proper grammar.

* If a lab exam is missed, the student must make arrangements through D2L email with the lab instructor within 5 college business days to request a make-up exam. If possible, and with the lab instructor's permission, the exam may be taken in a different section, or alternatively, the student may take a departmental LAB make up exam at a prearranged time.

* All other graded work (homework, classwork, lab work, lab quizzes, etc.) cannot be made up or accepted late.

EXPLANATION OF SPECIFIC PROCTORED EXAM INFORMATION

Instructor may use exam proctoring software, such as Honorlock or Respondus, to proctor lecture and lab exams. A computer containing a working Web Camera will be required for completion of exams requiring proctoring, as well as a reliable internet connection.

LAB/CLASSROOM SAFETY STATEMENT

Piedmont Technical College Laboratory Safety Statement:

[Lab Safety Statement](http://www.ptc.edu/courseinfo/safety.pdf) (www.ptc.edu/courseinfo/safety.pdf)

Classroom Safety Statement:

For laboratory sessions, students must wear garments that extend at least to the knee and must wear closed-toe shoes.

COURSE CONTENT OUTLINE

Advanced notification of any changes will be provided to the student.

Modules/Units

Module/Unit 1

Competencies:

Unit 1: Endocrine System and Circulatory System

- List, describe and compare the major chemical classes and general mechanisms of hormones.
- Describe each of the endocrine organs, their hormonal secretions and their hormone action.
- Describe the composition and functions of blood.

- List and describe the activities of each of the formed elements of blood.
- Describe hemostasis.
- Identify and give the functions for each of the anatomical parts of the heart.
- Describe the events of the cardiac cycle, particularly with regard to its relationship to the normal electrocardiogram.
- List and explain the factors involved in cardiodynamics.
- Describe the structure of typical blood vessels (arteries, veins, and capillaries.)
- Identify the major vessels of the circulatory system's subdivisions (coronary, cerebral, general systemic, hepatic portal, and fetal circulations).
- Describe the factors involved in regulation of blood pressure.

Module/Unit 2

Competencies:

Unit 2: Lymphatic and Immune Systems and Respiratory System

- Describe the components and functions of the lymphatic system.
- List and describe the participants in nonspecific defenses against disease.
- List and describe the participants in specific defenses against disease.
- Describe the organs of the respiratory system.
- Define the different forms of respiration (external, internal and cellular.)
- Explain the relationship of physical laws on the processes of respiration (Boyles' law, Dalton's law, Charles' law, Henry's law)
- Describe the process of gas exchange at the pulmonary membrane and the tissue/capillary boundary.
- Describe the various levels of control of respiration.

Module/Unit 3

Competencies:

Unit 3: The Urinary System and Fluid, Electrolyte, and Acid-Base Balance

- Describe the gross anatomy of the organs of the urinary system.

- Describe the parts of the nephron
- Describe the formation of urine.
- List and explain the physical and chemical aspects of urine.
- Describe the different fluid compartments of the body.
- List and describe the major body electrolytes.
- Explain the importance of pH balance and the major types of acids in the body.
- Describe the body buffer systems and their mechanisms of action.
- List and describe the different forms of pH imbalances.

Module/Unit 4

Competencies:

Unit 4: Digestive System and Nutrition and Metabolism

- Describe and give the functions of the organs of the digestive system.
- Describe the histological organization of the gut wall.
- Describe and identify the location for digestion and absorption of proteins, fats, and carbohydrates.
- Describe the metabolism of carbohydrates, fats, proteins and nucleic acids.
- List and give the function for the major vitamins and minerals.

Module/Unit 5

Competencies:

Unit 5: Reproductive System and Development

- Describe the gross anatomy of the male reproductive system.
- Describe the role of hormones in the production of male characteristics and the formation of sex cells.
- List and describe the composition of semen.
- Identify the structure and activity of sperm.
- Describe the gross anatomy of the female reproductive system.
- Describe the role of hormones in the production of female characteristics and the formation of sex cells.

- Identify the components of the menstrual cycle and the corresponding events of the female's pituitary and uterine cycle.
- Describe the physiology of sexual intercourse.
- Briefly describe the processes of:
 - fertilization
 - implantation
 - placental development
 - the three trimesters of human development
 - lactation

Module/Unit 6

Competencies:

Laboratory exercises. Upon the completion of the following exercises, the student should be able to: describe the procedures completed, collect the data from the exercises, analyze the collected data, and demonstrate the ability to discuss the results. Additionally, student will utilize a variety of resources including (but not limited to): anatomical models, prepared microscope slides, and preserved animal dissection(s) and/or images of these items.

(The labs performed in this course can be alternatively adapted to be administered online as well as in the classroom. This course can be successfully conducted using virtual labs.)

- LAB 1- Intro to Laboratory, Lab Safety, Microscope Review, and Endocrine System
Lab Safety Quiz and Microscope Quiz to be completed in D2L. Deadline set by Lab Instructor
- LAB 2- Blood, Microscopic Identification of formed elements, Blood Typing
- LAB 3- Anatomy of the Heart, Cardiac Cycle
- LAB 4- Dissection of Heart, Human Vascular System and Blood Pressure
- LAB 5- Lymphatic System
- LAB 6- Respiratory System Anatomy and Physiology

- LAB 7- Respiratory Volumes Laboratory
- LAB 8- Lab Exam 1 (Will cover material presented in Weeks 1-7)
- LAB 9- Urinary System Anatomy, Kidney Dissection
- LAB 10- Urinalysis
- LAB 11- Digestive System Anatomy
- LAB 12- Digestive system Physiology
- LAB 13- Reproduction System Anatomy
- LAB 14- TBA
- LAB 15- Lab Exam 2 (Will cover material presented in LABs 9 - 14)

*Gloves will be required for these Laboratories