



INSTRUCTIONAL PACKAGE

BIO 110

General Anatomy and Physiology

Effective Term

Fall 2024/Spring 2025/Summer 2025

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Part I: Course Information

Effective Term: Fall 2024/Spring 2025/Summer 2025

COURSE PREFIX: BIO 110

COURSE TITLE: General Anatomy and Physiology

CONTACT HOURS: 3-3

CREDIT HOURS: 3

RATIONALE FOR THE COURSE:

BIO 110 provides students with a general introduction to anatomy and physiology that prepares the students for more advanced coursework in their respective allied health program. This course will serve students in the medical coding and billing, phlebotomy, and patient care programs. After completing this course students will have a general understanding of the complex and interrelated nature of the human body and its various systems.

COURSE DESCRIPTION:

This course is a general introduction to the anatomy and physiology of the human body. Emphasis is on the organ systems of the human and their interrelationships.

PREREQUISITES/CO-REQUISITES:

New ACCUPLACER Reading Comp 235 or ACT English 14 or SAT Critical Reading 380 or Multiple Measures English 1 or Writing Sample ENG101 1 or WS ENG101 with Lab 1 or Writing Sample ENG155 1 or Credit level [ENG 101](#) Minimum Grade of C or Credit level [ENG 101](#) Minimum Grade of TC or Credit level [ENG 155](#) Minimum Grade of C or Credit level [ENG 155](#) Minimum Grade of TC

***Online/Hybrid** courses require students to complete the [Distance Learning Orientation Video](#) prior to enrolling in an online course.

REQUIRED MATERIALS:

Please visit the [BOOKSTORE](#) online site for most current textbook information.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

ADDITIONAL REQUIREMENTS:

A Connect access code from McGraw Hill is a required component of this course.

For Hybrid/Online Students Only: Each student will be required to view an orientation PowerPoint presentation during the first week of class. This presentation can be found on the course homepage in D2L under News. After viewing the presentation, all online students must complete the orientation quiz, which can be found under the dropdown assignment menu. A student will not be considered officially

enrolled in the course until the presentation has been viewed and the quiz completed with a 100% score. Any submitted work from the student including discussion posts, assignments, etc. will not be given a grade until the presentation has been viewed and the quiz has been submitted. Failure to view the presentation and take the quiz before midnight on the last day to add/drop classes will result in the student being automatically dropped from the course.

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's learning management system (LMS) used for course materials.
Access to myHGTC portal for student self-services.
College email access – this is the college's primary official form of communication.

STUDENT IDENTIFICATION VERIFICATION:

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

CLASSROOM ETIQUETTE:

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

NETIQUETTE: is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

ACADEMIC DISHONESTY:

All forms of academic dishonesty, as outlined in the Student Code in the HGTC catalog, will NOT be tolerated and will result in disciplinary action. Anyone caught cheating (Defined in the code as: "a. Copying from another student's test or answer sheet. b. Using materials or equipment during a test not authorized by the person giving the test. c. Collaborating with any other person during a test without permission. d. Knowingly obtaining, using, buying, selling, transporting, or soliciting in whole or in part the contents of a test prior to its administration. e. Bribing or coercing any other person to obtain tests or information about tests. f. Substituting for another student or permitting any other person to substitute for oneself. g. Cooperating or aiding in any of the above.") or committing plagiarism (Defined in the code as: "(1) the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work or (2) submitting content for academic purposes that are created by artificial intelligence, technology platforms, or writing services and representing that such content is the person's own work product.") will be given a grade of a zero for that assignment and reported to the Senior VP of Academic Affairs, in accordance with the student handbook. A second offense will result in the student being withdrawn from the course with a W or WF at the professor's discretion and charges being filed with the Chief Student Services Officer.

Part II: Student Learning Outcomes

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

Lecture Student Learning Outcomes:

Chapter 1 Introduction:

Define anatomy and physiology.

Define the levels of organization of multicellular organisms.

Describe the location of structures in the human body using anatomical terms of direction, regions, planes, positions, and cavities.

Describe the functions of the 11 organ systems and their basic role in maintaining homeostasis.

Describe the location, structure, and function of serous membranes.

Define homeostasis and explain why it is so important in human physiology.

Define negative feedback and positive feedback and explain their importance to homeostasis.

Define disease and describe the relationship between disease and homeostasis.

List the 5 basic needs for life.

Define metabolism, catabolism, and anabolism.

Chapter 2 Chemicals of life

Describe the structure of the atom and subatomic particles

Compare and contrast ionic bonds and covalent bonds

Compare synthesis and decomposition reactions.

Differentiate between organic and inorganic substances.

Name the 4 most common elements in the human body.

Compare solutions based on tonicity.

Describe the four types of major organic molecules in the body, their building blocks, an example of each, the location of each example in the body, and the function of each example.

Chapter 3 The Cell

Describe cell organelles and structures and explain their functions.

Describe mitosis stages.

Describe passive and active transport and give examples of each type.

Compare the effects of tonicity on body cells.

Chapter 4 Tissues and Membranes

Define tissue

Describe the 4 main tissue types, their structure, function, and location in the body.

Give examples of each tissue type.

Differentiate between connective tissue membranes and epithelial tissue membranes.

Chapter 5 Integumentary system

Use medical terminology related to the integumentary system.

Describe the histology of the epidermis, dermis, and hypodermis.

Describe the cells of the epidermis and their function.

Describe the structures of the dermis and their functions.

Compare and contrast the glands of the skin in terms of their structure, products, and functions.

Describe the anatomy and function of hair and nails.

Compare and contrast three degrees of burns in terms of symptoms, layers of the skin affected, and method used by the body for healing.

Describe a diagnostic test commonly used when diagnosing integumentary system disorders.

Describe forms of skin cancer in terms of the body area most affected, appearance, and ability to metastasize.

Describe skin disorders both infectious and noninfectious

Chapter 6 The Skeletal System

Use medical terminology related to the skeletal system

List functions of the skeletal system.

Distinguish between the axial skeleton and the appendicular skeleton.

Describe five types of bones classified by shape.

Identify bones of the axial skeleton and appendicular skeletons.

Describe the cells, fibers, and matrix of bone tissue.

Compare and contrast the histology of compact and cancellous bone.

Describe the anatomy of a long bone.

Compare and contrast endochondral and intramembranous ossification.

Compare and contrast endochondral and appositional bone growth.

Classify fractures using descriptive terms.

Contrast the 3 types of joints and give examples of each.

Describe disorders of the skeletal system and joints.

Chapter 7 The Muscular System

Use medical terminology related to the muscular system.

Demonstrate actions caused by muscles.

Describe the structural components of a muscle.

Compare and contrast skeletal, cardiac, and smooth muscle tissue in terms of appearance, structure and location.

Summarize the functions of the muscular system and give an example or explanation of each.

Describe muscle disorders and relate abnormal function to pathology.

Chapter 8 The Nervous System

Use medical terminology related to the nervous system.

Describe the organization of the nervous system in regard to structure and function.

Describe the anatomy of a neuron.

Describe neuroglia and state their function.

Describe the meninges covering the brain and spinal cord.

Describe the major landmarks and subdivisions of the brain and state their functions.

Describe the anatomy of the spinal cord.

Compare the parasympathetic and sympathetic divisions of the autonomic nervous system in terms of anatomy and function.

Describe nervous system disorders and relate abnormal function to the pathology.

Chapter 9 The Senses

Use medical terminology related to the senses.

Describe the purpose of and types of sensory receptors.

Describe the sensory receptors for the general senses in the skin.

Describe the sensory receptors for taste.

Describe the sensory receptors for smell.

Describe the anatomy of the ear.

Describe the anatomy of the eye.

Describe disorders of the senses and relate abnormal function to the pathology.

Chapter 10 The Endocrine System

Use medical terminology related to the endocrine system.

Define hormone, gland, and target organ.

Contrast endocrine glands and exocrine glands

Compare and contrast the endocrine and nervous systems in terms of type, specificity, speed, and duration of communication.

List the major hormones-along with their target tissues and functions- of each of the endocrine system glands.

Locate and identify endocrine system glands.

Explain the function of specific hormones.

Describe endocrine system disorders and relate abnormal function to pathology.

Chapter 11 Blood

Identify the components of blood.

List the constituents of plasma and their functions.

Identify the formed elements and list their functions.

Describe the body's mechanisms for controlling bleeding.

Describe pathways for blood clotting.

Explain what determines ABO and Rh blood types.

Explain how a blood type relates to transfusion compatibility.

Determine from a blood type the antigens and antibodies present and the transfusion compatibility.

Predict the compatibility between mother and fetus given Rh blood types for both and describe the possible effects.

Summarize the functions of blood by giving an example or explanation of each.

Describe common diagnostic blood tests and explain what can be learned from them.

Describe blood disorders.

Chapter 12 The Heart and Vessels

Use medical terminology related to the cardiovascular system.

Identify the chambers, valves, and features of the heart.

Trace blood flow through the heart.

Describe the heart's electrical conduction system.

Describe the events that produce the heart's cycle of contraction and relaxation.

Interpret a normal EKG, explaining what is happening electrically in the heart.

Locate and identify the major arteries and veins of the body.

Compare the anatomy of the three types of blood vessels.
Describe coronary and systemic circulatory routes.
Explain how blood in veins is returned to the heart.
Describe how blood pressure is expressed and how mean arterial pressure and pulse pressure are calculated.
Describe heart and vessel disorders and relate abnormal function to pathology.

Chapter 13 The Lymphatic System

Use medical terminology related to the lymphatic system.
Explain the origin and composition of lymph.
Describe lymph vessels.
Explain the route of lymph from the blood and back again.
Identify lymphoid tissues and organs and explain their functions.
Explain the functions of the lymphatic system.
Describe lymphatic system disorders and relate abnormal function to pathology.

Chapter 14 The Respiratory System

Use medical terminology related to the respiratory system.
Trace the flow of air from the nose to the pulmonary alveoli and relate the function of each part of the respiratory tract to its gross and microscopic anatomy.
Explain the mechanics of breathing in terms of anatomy and pressure gradients.
Describe the mechanisms for transporting O₂ and CO₂ in the blood.
Explain the functions of the respiratory system.
Describe respiratory system disorders and relate abnormal function to pathology.

Chapter 15 The Digestive System

Use medical terminology related to the digestive system.
Differentiate between mechanical digestion and chemical digestion.
Describe the digestive anatomy of the oral cavity.
Explain the physiology of mechanical and chemical digestion in the mouth.
Describe the digestive anatomy from the mouth to the stomach.
Explain how materials move from the mouth to the stomach.
Describe the digestive anatomy of the stomach.
Explain the physiology of mechanical and chemical digestion in the stomach.
Describe the anatomy of the digestive accessory organs connected to the duodenum by ducts.
Describe the digestive anatomy and function of the small intestine.
Describe the anatomy and function of the large intestine.
Summarize the functions of digestion.
Describe digestive system disorders and relate abnormal function to pathology.

Chapter 16 The Excretory/Urinary System

Use medical terminology related to the excretory system.
Identify the organs in the urinary system
List the functions of the kidneys in addition to urine production.
Describe the external and internal anatomy of the kidneys.
Describe the anatomy of a nephron.

Describe the anatomy of the ureters, urinary bladder, and male and female urethras.
 Summarize the functions of the excretory system.
 Describe excretory system disorders and relate abnormal function to pathology.

Chapter 17 The Male/Female Reproductive System

Use medical terminology related to the reproductive system.

Explain hormones involved in the reproductive system

Describe the anatomy and function of male and female reproductive organs

Describe male and female reproductive system disorders and relate abnormal function to pathology.

****Students – please refer to the Instructor’s Course Information sheet for specific information on assessments and due dates.***

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*:

Students’ performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Unit Tests	70%
Discussions	15%
LearnSmart/Connect	<u>15%</u>
	100%

****Students, for the specific number and type of evaluations, please refer to the Instructor’s Course Information Sheet.***

GRADING SYSTEM:

Please note the College adheres to a 10-point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

For online and hybrid courses, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, and if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

Science Department Attendance Policies:

For a 15-week course (fall and spring) or a 10-week course (summer), the allowed number of absences for a MW or TR class is as follows: 4 absences are allowed for lecture and 2 are allowed for lab, regardless of reason. For a lecture class that meets once a week, the allowed number of absences is 2.

For a 7-week fast-paced course (fall and spring) or a 5-week fast-paced course (summer), the allowed number of absences is as follows: 1 absence is allowed for lecture and 1 for lab, regardless of reason.

Online/Hybrid Attendance:

Students enrolled in distance learning courses (hybrid and online) are required to maintain contact with the instructor on a regular basis to be counted as "in attendance" for the course. All distance learning students must participate weekly in an Attendance activity in order to demonstrate course participation. Students showing no activity in the course for two weeks (these weeks do not need to be consecutive) will be withdrawn due to lack of attendance.

Lab Attendance for Hybrid Courses:

Students in hybrid classes in which labs meet weekly, are allowed two (2) lab absences. Students in hybrid labs that only meet 5 or 6 times during the semester, must attend all lab sessions for its entirety. When a student surpasses the allowed number of absences, the student will be dropped automatically from the course with a W or a WF.

Part V: Student Resources



The Student Success and Tutoring Center (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring, contact the SSTC at ssc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email ssc@hgtc.edu or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following free resources:

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.
4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

Visit the [Tech Central](#) website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324), Option #1.



HGTC Library:

Each campus location has a library where HGTC students, faculty, and staff may check out materials with their HGTC ID. All three HGTC campus libraries are equipped with computers to support academic research and related school work; printing is available as well. Visit the [Library](#) website for more information or call (843) 349-5268.

Student Testing:

Testing in an **online/hybrid** course and in make-up exam situations may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms (which may have a fee associated with the usage).

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability Services staff will review documentation of the student's disability and, in a confidential setting with the student, engage in an interactive process to develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided. Students will need to reach out to the Accessibility and Disability Services staff each semester to renew their accommodations.

COUNSELING SERVICES:

HGTC Counseling Services strives to optimize student success through managing personal and academic concerns that may interfere with achieving educational goals. Staff are available to every student for assistance and guidance on personal matters, academic concerns and other areas of concern. HGTC offers free in-person and telehealth counseling services to students. For more information about counseling services, please reach out to counseling@hgtc.edu or visit the website the [Counseling Services webpage](#).

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Horry-Georgetown Technical College shall not discriminate in employment or personnel decisions or in student admissions or in student decisions, or in all other segments of the College community on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation, in the educational programs and activities which it operates, and the college is prohibited from discrimination in such manner by applicable laws. Practices and requirements for nondiscrimination extend to the enrollment of students in programs and activities of the College and employment by the College.

All inquiries regarding the federal laws as they relate to discrimination on the basis of sex may be directed to Tamatha Sells, Title IX Coordinator, Horry-Georgetown Technical College, Building 1100C, Room 107B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5218, tamatha.sells@hgtc.edu or to the US Department of Education Office of Civil Rights. (Telephone: 800-421-3481/Email: OCR@ed.gov).

Other employee and applicant inquiries concerning the federal laws and their application to the College may be directed to Jacquelyne Snyder, Vice President, Human Resources and Employee Relations & the College's Affirmative Action/Equal Opportunity Officer, Horry-Georgetown Technical College, Building 200C, Room 205B, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5212, jacquelyne.snyder@hgtc.edu.

Other student and prospective student inquiries concerning the federal laws and their application to the College or any student decision may be directed to Dr. Melissa Batten, Vice President, Student Affairs, Section 504 & Title II Coordinator Horry-Georgetown Technical College, Building 1100C, Room 107A, 2050 Hwy 501 E, PO Box 261966, Conway, SC 29528-6066, 843-349-5228, melissa.batten@hgtc.edu.

TITLE IX REQUIREMENTS:

Title IX of the Education Amendments of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination.

HGTC prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking and will provide students, faculty, and staff with necessary information regarding prevention, policies, procedures, and resources.

Any student, or other member of the college community, who believes that they have been a victim of sexual harassment, domestic violence, dating violence, sexual assault, or stalking may file a report with the college's Title IX Coordinator or campus law enforcement*.

*Faculty and Staff are required to report these incidents to the Title IX Coordinator when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

For more information, contact Tamatha Sells, Title IX Coordinator, Conway Campus, Building 1100C, Room 107B, 843-349-5218, tamatha.sells@hgtc.edu.

PREGNANCY ACCOMMODATIONS

Under Title IX, colleges must not exclude a pregnant student from participating in any part of an educational program. Horry-Georgetown Technical College is committed to ensuring that pregnant students receive reasonable accommodations to ensure access to our educational programs.

Students should advise the Title IX Coordinator of a potential need for accommodations as soon

as they know they are pregnant. It is extremely important that communication between student, instructors, and the Title IX Coordinator begin as soon as possible. Each situation is unique and will be addressed individually.

Title IX accommodations DO NOT apply to Financial Aid. Financial Aid regulations do not give the College any discretion in terms of Financial Aid eligibility.

Certain educational programs may have strict certification requirements or requirements mandated by outside regulatory agencies. Therefore, in some programs, the application of Title IX accommodations may be limited.

To request pregnancy accommodations, please complete the [**Pregnancy Intake Form**](#).