



# **INSTRUCTIONAL PACKAGE**

BIO 202  
Botany

Effective Term  
Fall 2022/Spring 2023/Summer 2023

# INSTRUCTIONAL PACKAGE

## Part I: Course Information

Effective Term: 2022-2023

COURSE PREFIX: BIO 202

COURSE TITLE: Botany

CONTACT HOURS: 3-3

CREDIT HOURS: 4

### **RATIONALE FOR THE COURSE:**

BIO 202 introduces students to the terminologies and fundamentals of higher plant anatomy, morphology, organization, growth and development, physiology and reproduction. The student will explore the interrelationships of plant form and plant metabolism and develop a greater appreciation for plants in the environment.

### **COURSE DESCRIPTION:**

This course is a study of cells, tissue, structure, growth, development, organization, energetics, and physiology of plants. This course is transferable to public senior institutions as part of the South Carolina Commission on Higher Education Statewide Articulation Agreement.

### **PREREQUISITES/CO-REQUISITES:**

BIO 101 Minimum Grade of C or Credit level BIO 101 Minimum Grade of TC

\***Online/Hybrid** courses require students to complete the [DLi 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:**

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.

2022-2023

**TECHNICAL REQUIREMENTS:**

Access to Desire2Learn (D2L), HGTC's student portal for course materials. myHGTC and college email access.

**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 or committing plagiarism (Defined in the code as: "The appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit") 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 "WF" and charges being filed with the Chief Student Services Officer.

**Part II: Student Learning Outcomes****COURSE LEARNING OUTCOMES and ASSESSMENTS\*:****UNIT 1**

Defining plant biology and relating botany to other sciences.

Defining various plant studies (anatomy, taxonomy, ecology, etc.).

Discussing the differences between protons, neutrons, and electrons.

Identifying the characteristics of living things.

Defining matter.

Showing how protons and electrons interact to give the specific properties of each of the elements.

Distinguishing between the atomic mass and the atomic number.

Identifying the types of chemical bonds.

Distinguishing ions, molecules, and compounds.

Examining the major classes of organic molecules: carbohydrates, lipids, proteins and nucleic acids.

Discussing the role and function of enzymes in plant metabolism.

## **UNIT 2**

Comparing and contrasting the prokaryotic cell with the eukaryotic cell.

Labeling the structures of a typical plant cell and describing their functions.

Defining active transport, passive transport, selective permeability, hydrophilic, and hydrophobic.

Defining karyokinesis and cytokinesis.

Identifying the stages of mitosis and outlining the events that occurs in each stage.

Explaining the phragmoplast and its function.

Comparing the structure and function of DNA and RNA.

Outlining the process of DNA replication.

Outlining the sequence of events in the synthesis of RNA and in the synthesis of a protein.

## **UNIT 3**

Comparing parenchyma tissue with collenchyma tissue and parenchyma tissue with sclerenchyma tissue.

Comparing fibers, tracheids and vessel elements with regard to structure and function.

Illustrating the cellular components of the phloem.

Illustrating and labeling a cross-section of a typical dicot leaf, a cross-section of a typical monocot leaf, and a typical gymnosperm leaf.

Defining xerophyte, mesophyte, and hydrophyte.

Labeling and explaining a diagram of a longitudinal section of a root.

Identifying tissues originating in the primary meristems of the root tip.

Labeling a diagram of a cross-section of a typical dicot root made in the region of primary tissues.

Labeling a diagram of a cross-section of a typical monocot root.

Comparing and contrasting longitudinal sections of the apical meristems of both the root and shoot.

Labeling a diagram of a cross-section of a typical dicot stem in the region of primary tissues.

Labeling a diagram of a longitudinal section of the stem apical meristem.

Comparing and contrasting the root and the shoot.

Defining secondary tissue and bark.

Comparing the inner bark with the outer bark.

Labeling a diagram of the periderm.

Labeling a diagram of 1-, 2-, or 3-year-old wood stem and locating the primary xylem and primary phloem.

Labeling a diagram of a cross-section of a monocot stem and a diagram of a typical monocot vascular bundle.

Comparing the monocot vascular bundle with the vascular bundle of an herbaceous dicot stem.

Identifying and describing the cells of the epidermis.  
Explaining the origin and function of the stomatal apparatus in the epidermis.  
Distinguishing between long hairs and microhairs in the epidermis.  
Identifying the leaf sheath and the leaf blade.  
Explaining the root in terms of its origin, when initiated and its elongation.  
Distinguishing between cuticular, lenticular, and stomatal transpiration.  
Explaining the mechanism for the opening and closing of the stoma.

#### **UNIT 4**

Defining gamete, zygote, fertilization, haploid, diploid, and homologous pair.  
Comparing mitosis and meiosis, including all phases.  
Explaining alteration of generations.  
Distinguishing between Meiosis I and Meiosis II.  
Explaining o gamete formation; o gamete formation.  
Labeling a diagram of a mature embryo sac.  
Defining double fertilization.  
Identifying parts of a flower, seed and fruit.  
Defining coleoptile, palea, prophyll, rachis, rachilla, glume, lemma, lodicule, anthesis, endosperm, scutellum, epiblast, main embryonic axis, coleoptile, coleorhiza, caryopsis, pericarp, embryo, apomixes.  
Labeling a diagram of a caryopsis.  
Explaining the formation of both the embryo and endosperm.  
Contrasting the growth of the root and shoot during the germination process of the monocot with that of the dicot.  
Defining inflorescence, culm, floral primordia, vegetative primordia, ridges and knobs, spikelet, glume, lodicule.  
Defining triple fusion, double-fertilization, endosperm, pollen grain, embryo, zygote.

#### **UNIT 5**

Explaining the processes of diffusion, osmosis, plasmolysis, active transport, passive transport and imbibition.  
Explaining the pressure flow hypothesis and cohesion-tension theory.  
Contrasting growth, differentiation, and development.  
Distinguishing among nutrients, vitamins, and plant hormones.  
Defining photoperiodism and distinguishing among short-day, long-day, intermediate-day and day-neutral plants.  
Defining dormancy and stratification, including examples.  
Contrasting the generalized equations of photosynthesis and respiration.  
Explaining the reactions of photosynthesis and respiration.  
Distinguishing between aerobic respiration and fermentation.  
Comparing assimilation and digestion.

## UNIT 6

Identifying the components of a DNA molecule and explain the function of DNA.

Outlining how DNA replicates.

Outlining the steps and functions of transcription and translation.

Explaining Mendel's laws of independent assortment and segregation of genes.

Showing the ratios of the offspring in the first two generations from a monohybrid and a dihybrid cross.

Distinguishing between genotype/phenotype and heterozygous/homozygous.

Solving simple genetics problems involving dominance and incomplete dominance.

Explaining the Hardy-Weinberg law.

Explaining breeding methods.

Outlining the steps involved in creating a transgenic plant.

### Lab Student Learning Outcomes:

Learning outcomes for the lab portion of this course are the Objectives given for each lab in the manual and can be found at the start of each lab. They include hands-on items such as identification of lab equipment, models, and specimens on slides, and the use of microscopes and lab equipment.

***\*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\*

Lecture	75%
Lab	25%
	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, if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

### Lecture Attendance:

The allowed number of absences for a MW or TR class is as follows: four (4) absences are allowed for lecture, regardless of reason. For a lecture class that meets once a week, the allowed number of absences is two (2). When a student surpasses the allowed number of absences, the student will be withdrawn automatically from the course with a W or a WF. Remember, an absence is an absence, no matter if it is excused or not!

### Lab Attendance:

Students are allowed two (2) lab absences for a lab that meets weekly. When a student surpasses the allowed number of absences, the student will be withdrawn automatically from the course with a W or a WF.

### 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 academic activity in order to demonstrate course participation. For an online lecture, the allowed number of absences is two weekly lecture absences. For an online lab, the allowed number of absences is two weekly lab absences. Students showing no activity in the course for more than 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 [sstc@hgtc.edu](mailto:sstc@hgtc.edu) or self-schedule in the Penji iOS/Android app or at [www.penjiapp.com](http://www.penjiapp.com). Email [sstc@hgtc.edu](mailto:sstc@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.

### STUDENT TESTING:

(If course is offered in multiple format include this section, delete if only F2F sections are offered.)

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Further more 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 staff will review documentation of the student's disability and, in a confidential setting with the student, 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.

### **STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:**

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, 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 educational programs and/or activities.

### **TITLE IX REQUIREMENTS:**

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college's Chief Student Services Officer, campus law enforcement, or with the college's Title IX Coordinator, or designee.

\*Faculty and Staff are required to report incidents to the Title IX Coordinators 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).

### **INQUIRIES REGARDING THE NON-DISCRIMINATION/TITLE IX POLICIES:**

**Student and prospective student** inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.

**Dr. Melissa Batten, VP Student Affairs**

*Title IX Coordinator*

Building 1100, Room 107A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5228

[Melissa.Batten@hgtc.edu](mailto:Melissa.Batten@hgtc.edu)

**Employee and applicant** inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.

**Jacquelyne Snyder, VP Human Resources**

*EEO and Title IX Coordinator*

Building 200, Room 212A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5212

[Jacquelyne.Snyder@hgtc.edu](mailto:Jacquelyne.Snyder@hgtc.edu)