



INSTRUCTIONAL PACKAGE

TUF 175
Turfgrass Pest II

Effective Term
2021 - 2022

INSTRUCTIONAL PACKAGE

PART I: COURSE INFORMATION

Effective Term: Fall 2021

COURSE PREFIX: TUF 175

COURSE TITLE: Turfgrass Pest II

CONTACT HOURS: 5.0

CREDIT HOURS: 3.0

RATIONALE FOR THE COURSE:

The modern management of turfgrasses under high maintenance *conditions*, such as on golf courses, requires the manager to be intimately familiar with pest problems that may occur. These pests include weeds, insects, and diseases. The manager must be able to identify pests and monitor the turf to anticipate weed, insect and disease problems in advance and apply control measures to prevent outbreaks. This course is designed to familiarize the student with the biology and ecology of the most common and serious insect, disease, weed pests, their identification, and strategies for their management.

COURSE DESCRIPTION:

This course provides an in-depth analysis of turfgrass pests with emphasis on scientific resources.

PREREQUISITES/CO-REQUISITES:

TUF 174

REQUIRED MATERIALS:

Please visit the [BOOKSTORE](#) online site for most current textbook information. Use the direct link below to find textbooks.

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

Fermanian, Thomas, Shurtleff, Malcom, Randell, Rosco, Wilkinson, Henry, Nixon, Philip: *Controlling Turfgrass Pest 3rd. Edition, Prentice Hall 2003*

Field Guide to Insects of North America, by Eaton , and Kaufman, Houghton Mufflin Co

Weeds of Southern Turfgrasses by Cooperative extension service/The University of Georgia College of Agricultural and Environmental Sciences. Athens

ADDITIONAL REQUIREMENTS:

None

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](#).

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

UNIT I **Introduction Weeds** the student should be able to identify factors affecting weed ecology, including cultural operations, climatic factors, dormancy, and seed production. Discuss weed influences on turf and possible signs of unsuitable turfgrass growing conditions.

Chapter 4: Biology and Management of Weeds in Turfgrasses

4.1 Types of Weeds

1. Explain the meaning of Weed.
2. Distinguish between the following: broadleaf weeds, grasses, annual, perennial, biennial, winter annual, summer annual, perennial, biennial, winter annual, summer annual

4.2 Weed Biology

1. Explain how annual weeds are classified by season
2. Discuss the seasonal differences of annual weed germination

4.3 Weed Ecology

1. Identify the factors affecting weed ecology
2. Discuss factors affecting weed ecology, including cultural operations, climatic factors, dormancy

4.4 Influence of Weeds on Turf

1. Explain how weeds influence the turf

2. Identify turf resources that are affected by competition of weeds and turf
3. Discuss the role of allelopathy compound
4. Identify possible signs of unsuitable turfgrass growing conditions.

4.5 Weed Identification

1. Identify different types of leaf arrangement on broadleaf weeds: alternate, opposite, whorled, basal rosette.
2. Distinguish between simple and compound leaf types.
3. Identify and label flower arrangements in broadleaf weeds.
4. Identify the parts of a flower and explain the role of each part: stamen, imperfect flower, pistil, regular/irregular flowers, perfect flower, disk and ray flowers
5. Identify features for identifying grassy weeds: vernation types, sheath margins, ligule, rhizome, collar types, stolon, awicle arrangement, palea, lemma, awn, glume, floret
6. Utilize a dicotomous key for identification of broadleaf and grassy weeds.
7. Identify approximately 100 common turfgrass weeds.

4.10 Cultural Control Methods

1. List cultural control methods for weed management
2. Explain each cultural control method

4.11. Chemical Controls

1. List categories of chemical control
2. Discuss the following categories: contact herbicide, systemic herbicide, soil sterilant,

UNIT II **Plant Diseases** The student will be able to develop and in-depth knowledge of the symptoms and primary hosts of turfgrass disease their biology and control.

Unit II **Insects** The student will identify insects and monitor turf to anticipate problems in advance and apply control measures to prevent outbreaks.

1. List classes of arthropod animals.
2. Identify and label unknown adult and larval insects to order level.
3. Identify unknown insects associated with turf using dichotomous keys.
4. Identify metamorphosis patterns of specific turfgrass insect pests.
5. Describe how specific insects injure turfgrasses.
6. Identify larval types of Coleoptera pests.
7. Summarize the generalized life cycle of Japanese, May and Green June beetles.

8. Define control strategies for grub and billbug control.
9. Identify and classify billbugs and diagram their generalized life cycles.
10. Identify wireworm larvae and adults.
11. Identify and classify ground pearls. List the primary hosts and give a generalized life cycle.
12. Identify the Southern and tawny mole crickets, be able to discuss their generalized life cycles, and give control strategies.
13. Identify sod webworm, cutworm, and armyworm larvae, give generalized life cycles and control strategies.
14. Discuss reasons the frit fly is a pest of turf.
15. Identify chinch bugs, be able to discuss their generalized life cycles, distinguish between Southern and hairy chinch bugs, list general turfgrass hosts of each, and give control strategies.
16. Identify greenbugs and describe the damage they may cause on Kentucky bluegrass.
17. Describe damage and generalized life cycles of leafhoppers, scale insects, spittlebugs, mites.
18. Describe the life cycle, history of spread, and control measures for the red imported fire ant.
19. Describe in detail the relationship between the cicada-killer wasp and its host.
20. Distinguish between applied and natural control of turfgrass insect pests.
21. List the 5 basic steps in insect pest management.
22. Classify the following insecticides as to residuality, spectrum of activity, toxicity, and mode of action: diazinon, chlorpyrifos, malathion, aspon, trichlorfon, isofenphos, acephate, carbaryl, bendiocarb.

UNIT II **Plant Diseases** The student will be able to develop and in depth knowledge of the symptoms and primary hosts of turfgrass disease their biology and control.

UNIT III

1. Define:

| | |
|-----------------------------|-------------|
| a. disease | f. pathogen |
| b. symptom/sign | g. fungi |
| c. injury | h. virus |
| d. infectious/noninfectious | i. bacteria |
| e. parasite | j. nematode |

2. Concerning fungi, define:

| | |
|--------------|--------------|
| a. hypha | e. sporangia |
| b. spores | f. zoospore |
| c. sclerotia | g. conidia |
| d. oospore | |
3. List the 5 primary classes of fungi.
4. Give specific examples of fungi represented by each class.
5. Describe how slime molds might be mistaken for turfgrass pathogens.
6. Diagram a generalized life cycle of Pythium and describe why Pythium is an important pathogen.
7. List ways in which fungal spores are transported.
8. List nine cultural practices that aid in control of turfgrass diseases.
9. Utilize a key to aid in identification of turfgrass diseases.
10. Describe symptoms and primary hosts and control of the following fungal diseases: anthracnose, copper spot, curvularia blight, "Helminthosporium: diseases, dollar spot, downy mildew, fairy rings, Fusarium patch, gray leafspot, leaf smuts, Nigrospora blight, red thread, brown patch, yellow patch, rusts, Typhula blight, Southern blight, spring dead spot, summer patch and necrotic ringspot, take-all patch, and seed decay, damping-off, and seedling blights.
11. List the three basic methods of control of infectious plant disease and give examples of each method.
12. Define a soil fumigant and give reasons why disease and nematode problems may be more severe following fumigation.
13. Define:

| | |
|---------------------------------|---------------------------|
| a. nematicide | d. systemic fungicides |
| b. fungicide | e. WP, G, F, S, WDG, etc. |
| c. protective-contact fungicide | |
14. Give 5 possible negative effects of fungicides.
15. Describe in detail the bacterial wilt of Toronto C-15 bentgrass.
16. Describe symptoms, spread, hosts, and control for St. Augustine Decline.

17. Define:

- a. stylet
- b. ectoparasite
- c. population
- d. endoparasite
- e. threshold population

18. Describe the 2 major ways nematodes damage roots.

19. Describe symptoms of nematode damaged turfgrass.

20. List control measures for nematodes (preplant and postplant).

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

Module #1

Materials Covered: Unit 1 Turfgrass Weeds

***Assessment(s):** Weed Collection.

Learning Outcomes:

1. Describe factors affecting weed ecology, including cultural operations, climatic factors, dormancy, and seed production.
2. Label examples of leaf arrangement on weeds: alternate, opposite, whorled, basal rosette t.
3. Use dichotomous keys for identification of broadleaf and grassy weeds.

Module #3

Materials Covered: Unit 3 Plant Diseases

***Assessment(s):** Lab activity

Learning Outcomes:

1. List the three basic methods of control of infectious plant disease, and give examples of each method.
2. Describe the 5 primary classes of fungi.
3. Explain multiple control measures and why they may change in a turfgrass environment.

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.

| | |
|-------------|------|
| Tests | 25% |
| Quiz | 15% |
| Lab Project | 35% |
| Lab | 25% |
| | 100% |

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

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.

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 or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email 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 #2.

STUDENT TESTING:

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

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 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

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