



INSTRUCTIONAL PACKAGE

TUF 175

Turfgrass Pest II

Effective Term

Fall/2018

INSTRUCTIONAL PACKAGE

PART I: COURSE INFORMATION

Effective Term: Fall 2018

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, diseases, and nematodes. The manager must be able to identify pests and monitor 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 most common and serious weed, insect, disease, and nematode 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:

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

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

Please visit the Bookstore online site for most current textbook information. Use the direct link below to find textbooks.

[BOOKSTORE](#).

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

ADDITIONAL REQUIREMENTS:

None

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's student portal for course materials.
WaveNet and D2L 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.

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, auricle 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
 - b. symptom/sign
 - c. injury
 - d. infectious/noninfectious
 - e. parasite
 - f. pathogen
 - g. fungi
 - h. virus
 - i. bacteria
 - j. nematode
2. Concerning fungi, define:
 - a. hypha
 - b. spores
 - c. sclerotia
 - d. oospore
 - e. sporangia
 - f. zoospore
 - g. conidia
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
 - b. fungicide
 - c. protective-contact fungicide
 - d. systemic fungicides
 - e. WP, G, F, S, WDG, etc.
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.

****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*

Tests	25%
Quiz	25%
Papers/Plans	25%
Lab	25%
	100%

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

GRADING SYSTEM:

State the College’s or departmental grading system as delineated in the Catalog. 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. You must have your Dean’s approval if changes in the scale are made.

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 ([ACADEMIC CALENDAR](#)). 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 eighty percent (80%) of his or her classes in order to be eligible to receive credit for any course. However, due to the varied nature of courses taught at the College, a more rigid attendance policy may be required by individual instructors. At a minimum, a student may be withdrawn from a course(s) after he or she has been absent in excess of ten percent (10%) of the total contact hours for a course. **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.

Part V: Student Resources

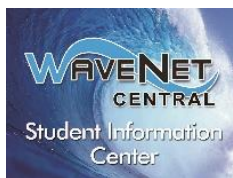


The Student Success and Tutoring Center (SSTC)

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

1. **Academic coaches** for most subject areas, **Writing Center Support**, and **college success skills**.
2. **On-line student success and academic support resources**.

Visit the SSTC website: [Student Success & Tutoring Center](#) and visit the student services tab in your WaveNet account to schedule appointments using TutorTrac. For more information, call: SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455. Room locations and Live Chat is available on the SSTC website.



Student Information Center: WaveNet Central (WNC)

WNC offers to all students the following **free** resources:

1. **Getting around HGTC**: General information and guidance for enrollment!
2. Use the [Online Resource Center \(ORC\)](#) for COMPASS support, technology education, and online tools.
3. **Drop-in technology support or scheduled training** in the Center or in class.
4. **In-person workshops, online tutorials and more services** are available.

Visit the WNC website: [Wavenet Central](#). Live Chat and Center locations are posted on the website. Or please call one of the following locations: WNC Conway, 349-5182; WNC Grand Strand, 477-2076; and WNC Georgetown, 520-1473.

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 Jocelyn Williams, Director of Student Development on the Conway Campus Jaime Davis, Counselor/Advisor on the Georgetown Campus or Kristin Griffin, Counselor on the Grand Strand Campus. These individuals 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, gender, national or ethnic origin, age, religion, disability, marital status, veteran status, sexual orientation, gender identity, or pregnancy in educational programs and/or activities.

Title IX Requirements

Horry Georgetown Technical College prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking. Any student who believe he or she has experienced or witnessed discrimination including sexual harassment, domestic violence, dating violence, sexual assault or stalking is encouraged to report such incidents to one of the College's Title IX Coordinators.

*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 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 Associate Vice President for Student Affairs.	Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Associate Vice President for Human Resources.
Dr. Melissa Batten, AVP Student Affairs <i>Title IX Coordinator</i> Building 1100, Room 107A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5228 Melissa.Batten@hgtc.edu	Jacquelyne Snyder, AVP Human Resources <i>Section 504, Title II, and Title IX Coordinator</i> Building 200, Room 212A, Conway Campus PO Box 261966, Conway, SC 29528-6066 843-349-5212 Jacquelyne.Snyder@hgtc.edu