

SYLLABUS

Rootzone Management for Golf and Sports Turf (HORT 4913) Spring 2005

INSTRUCTOR

Instructor: Dr. Douglas Karcher
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Office: 308 PTSC
Hours: Tuesday and Thursday, 9:00 to 11:00 am.

Students are welcomed for “walk-in” visits during office hours, however, scheduling an appointment will ensure a visit with minimal waiting. If students need personal time with the instructor outside of regular office hours, please make an appointment at least 24 hours in advance of the meeting time.

GENERAL COURSE INFORMATION

Course Description: An overview of the fundamental concepts of soil physical and chemical properties as related to turfgrass management.

Pre-requisites: Introduction to Turfgrass Management (HORT 2303/2300L)
Soil Science (CSES 2303/2301L)

Course Credit: 3 hours.
Lecture: Monday, 3:30 – 5:20 pm, AGRI 115
Laboratory: Wednesday, 1:30 – 3:20 pm, ROSE 110

Course Objectives:

At the completion of this course, students shall be able to:

1. Understand soil physical properties terminology and how soil physical properties interact with turfgrass management practices.
2. Understand the theory behind sand-based rootzone construction and how afflictions such as localized dry spot and black layer often result.
3. Understand how thatch and organic matter develop and impact the playability and physical properties of the surface soil.
4. Differentiate among the many types of turf cultivation practices available and the understand the pros and cons of each.
5. Develop irrigation schedules based on turf species, soil-type, weather conditions, and water quality.

6. Differentiate between the elements that are essential for turf growth and development and those that are limiting.
7. Understand the properties of the various fertilizers that are used to remedy nutrient deficiencies and how they impact other soil chemical properties.

Course website: <http://webct.uark.edu>

Recommended texts:

Turfgrass Soil Fertility and Chemical Problems: Assessment and Management. R.N. Carrow, D.V. Waddington, and P.E. Rieke. 2002. Wiley. Hoboken, NJ.

Best Golf Course Management Practices. 2nd Edition. L.B. McCarty. 2005. Pearson Prentice Hall. Upper Saddle River, NJ.

The Superintendent's Guide to Controlling Green Putting Green Speed. T.A. Nikolai. 2004. Wiley. Hoboken, NJ.

Practical Drainage for Golf, Sportsturf and Horticulture. K. McIntyre and B. Jakobsen. 2000. Wiley. Hoboken, NJ.

COURSE FORMAT

Lectures: The class will be instructed in 1 lecture session (2 hr) each week. The lectures will be largely based upon information from various turfgrass and soils textbooks, and research reports. Since many of these materials will not be accessible to the students outside of the classroom, lecture attendance is of utmost importance.

Many students in this course bring turf management experiences from previous employment at golf courses, sports fields, or home lawn care services. Therefore, class discussion is highly encouraged and guarantees an optimal environment for learning.

Lab/Homework: A two hour laboratory session will be used per week to supplement the lecture material and for student presentations. These sessions will often be held at the Horticulture Field Laboratory, which is about 3 miles north of campus. Since many laboratory activities will be conducted in groups, attendance is mandatory. Laboratory assignments and associated homework will constitute 20% of the final grade

Quizzes: A short quiz will be administered at the beginning of most Wednesday laboratory sessions and will cover material from recent lectures. As everyone occasionally has an "off" day, each student will be allowed to drop their lowest quiz score when final grades are calculated. Quizzes will constitute 15% of the final grade.

Paper presentation: Each student will present an assigned research paper to the class that relates to a course topic. This assignment constitutes 15% of the final grade. Grades will be based on the content and delivery of the presentation as well as leading of class discussion. For full credit, the presentation must include 1) the research problem, 2) research objectives, 3) summary of research methods, 4) research results, and 5) final conclusions. Students may use a combination of overheads, a PowerPoint presentation, handouts, and the whiteboard as visual aids.

Soil mgt. program: Midway through the semester, each student will be given a theoretical turfgrass soil description, including soil test information, functional use, and the turf species present. From this information, the student will create a detailed soil management program that includes cultivation and fertility practices to best manage the turf. Students will be expected to summarize any major problems and discuss possible remedies. In addition, an annual calendar should be presented to show when fertilizer applications or cultivation practices will be conducted. Students should keep track of how much of each type of fertilizer will be needed throughout the year, what cultivation equipment will be necessary, and the total material and labor cost of the soil management program. This paper constitutes 25% of the final grade.

Exams: Three exams (2 midterms and 1 final) will be administered during the semester. Each exam will be cumulative in the sense that students will need to use concepts covered earlier in the semester to adequately answer questions. However, the majority of each exam will cover topics presented since the previous exam. Exams constitute 25% of the final grade.

Make Up Work: Exams can be made up if the instructor is given notice of planned absences at least 2 class periods before the exam or a doctor's note from the Health Center is presented to the instructor immediately after an illness. No make-up exams will be given after 1 week following the original exam time. Late assignments will be deducted by 10% for each day it is late (an assignment is considered late if it is not turned in during the class period in which it is due).

Students who are utilizing the Center for Americans with Disabilities and have special needs should make the instructors aware of such. Special testing arrangements must be made in advance of any examination with a recommendation from the ADA office.

GRADING

<u>Grading:</u>	Laboratory / homework	20%
	Quizzes	15%
	Paper presentation	15%
	Soil management program	25%
	Exams	25%

<u>Grading Scale:</u>	≥ 90%	A
	80 – 89%	B
	70 – 79%	C
	60 – 69%	D
	< 60%	F

OTHER COURSE POLICIES

Academic Honesty: The instructor assumes that the students will display a high level of integrity and academic honesty. Therefore, cheating, copying, or plagiarism will not be tolerated. Students will be required to read and understand the University Rules on Academic Honesty found in the Undergraduate Student Catalog. Infractions of University policies will be dealt with according to University procedures. You may anonymously report incidents or allegations of academic honesty to Dr. Karcher; Students are strongly encouraged to express any related concerns with the instructor. All violations of academic honesty will be reported to the Judicial Affairs office and the DBCAFLS Dean's office

Inclement Weather: The class will meet during scheduled class time whenever the University is open. If you have questions, please check the UA Undergraduate Student Catalogue or see the University Homepage (<http://www.uark.edu/>) for details and weather updates. If class is canceled for any reason, students will be notified at least one hour in advance via e-mail.

Special Assistance: Medical Emergencies: If you need course adaptation or accommodations because of disability, medical emergencies, or if special arrangements are necessary in case of a building evacuation, notify the instructor. No penalties are incurred for late homework or missed examinations because of a medical condition or other reason over which the student has no control. Please notify the instructor should such a situation arise to make appropriate arrangements.

Religious Holidays: If the scheduling of homework assignments or examinations interferes with the observance of religious holidays, please inform the instructor. It is the student's responsibility to make arrangements in advance.

COURSE OUTLINE

Week of:	Topic
Jan 17	Course overview, soil physical properties
Jan 24	Drainage
Jan 31	Rootzone construction, amendments
Feb 07	Irrigation scheduling, NO CLASS 2/9
Feb 14	Thatch, sand topdressing, rolling
Feb 21	Compaction, cultivation, EXAM #1 2/23
Feb 28	Localized dry spot, wetting agents
Mar 07	Black layer, algae, moss
Mar 14	CEC, pH, base saturation
Mar 21	SPRING BREAK
Mar 28	Salinity, assessing nutrient status
Apr 04	Primary macronutrients , EXAM #2 4/6
Apr 11	Secondary macronutrients and micronutrients
Apr 18	Developing a fertilizer program
Apr 25	Fertilizer characteristics
May 02	Unique soil problems
	FINAL EXAM 5/12 from 12:30 to 2:30 pm