

Turfgrass Science (H441)

Fall 2005

Schedule: 10:00 to 10:50 a.m. Monday, Wednesday, and Friday

Office Hours: 11:00-12:00 Monday, Wednesday, and Friday

Instructor: Dr. Yaling Qian, Associate Professor, #103 Shepardson,
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Course Objectives:

- 1) Familiarize with turfgrass species and cultivar selection.
- 2) Address environmental stresses that affect turfgrass growth and address the cultural practices that can be employed to minimize damage from environmental stresses.
- 3) Address soil and turfgrass interaction, soil modifications, and turfgrass nutrient requirements.
- 4) Discuss important current issues in the area of turfgrass science.

Reference books:

1. Best Golf Course Management Practices. L.B. McCarty. 2001.
 2. Turfgrass. D.V. Waddington, R.N. Carrow, and R.C. Shearman. 1992.
 3. Turfgrass Ecology & Management. Karl Danneberger. 1993.
 4. Turfgrass: Science and Culture. James Beard. 1973.
 5. Applied Turfgrass Science and Physiology. Jack Fry and Bingru Huang. 2004.
- Some information will come from the current literatures
 - There will be handouts.

Grading:

1. Quiz (100 pts).
2. Three exams (100 pts each):

Final grade: A: $\geq 90\%$
 B: $\geq 80\%$
 C: $\geq 70\%$
 D:

Field trip: At least one field trip will be scheduled.

Class policy: 1) Class attendance,
 2) No make up quiz without excuse,

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Tentative Course Outline

CLASS OVERVIEW AND INTRODUCTION

Turfgrass industry and turfgrass science
Turfgrass information sources, TGIF
Web-sites:

TURF GRASS SPECIES AND CULTIVAR SELECTION

1. Cool season vs. warm season turfgrass and regions of adaptation
2. Photosynthesis pathway and climate adaptation
3. Turfgrass Development and breeding efforts
4. Review of major turfgrasses: Bluegrasses; Bentgrass; Ryegrass; Bermudagrass
Native and low maintenance grass

TURFGRASS ENVIRONMENTAL FACTORS

I. Abiotic Factors - Temperature, Light, Traffic

Water

Currently water issue and water policy
Water budget

Water Quantity: Too much: flooding
Too little: drought

Drought stress and management

Tools for irrigation management (demonstration)

Water Quality:
Salinity tolerance
Irrigation with effluent water
Water quality test

Temperature

Cold

Chilling injury
Freezing injury

Heat

Light

Quantity, quality, duration
Turf management in shade

Traffic

Compaction and Wearing
Strategies to reduce the soil compaction

Plant Growth Regulators

1. Types
2. Functions

II. Edaphic Factors - Soil and Turf Interaction

- 1) Soil properties and turfgrass growth
hydraulic conductivity, soil layer
fertility, PH, CEC
thatch, bacterial, algae, nematodes, fungus.
- 2) Selecting soil for modified root zones,
Sand, organic matters,
USGA green,
Other types of putting greens;
topdressing, soil amendments, etc.

III. Biotic Factors

Turfgrass diseases
Patch diseases
Disease management
Fungicide resistance

**FINAL REVIEWS, EVALUATION
FINAL EXAMINATION**