Turfgrass Science (H441)  
Fall 2013

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, Professor, #102 Shepardson,  
Phone: 491-7079 (O), e-mail: Yaling.Qian@colostate.edu

Course Objectives:

Turfgrass Science emphasizes the scientific principles of turfgrass management.

1) Familiarize with turfgrass species and cultivars.
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 the most common turfgrass diseases, conducive environments, and their managements.
5) Discuss important current issues in the area of turfgrass science.
6) Enhance critical thinking and learn how best to develop innovative management strategies that are practical, environmentally sound and sustainable.

Reference books (optional):
5. Managing Turfgrass pests – Thomas L Watschke, Peter Dernoden, and David Shetlar
6. Controlling Turfgrass pests – Tom Fermanian et al.
   • Some information will come from the current literatures
   • There will be handouts.

Grading:
1. Quiz (100 pts). Almost on every Friday.
2. Two exams (100 pts each): Mid-term and the final.
3. Special term project (100 pts)

Class policy: 1) Class attendance,
2) No make up quiz without excuse,
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. Photosynthetic pathway difference for C3 and C4 grasses
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 and management

IV. Project presentations

FINAL REVIEWS, EVALUATION
FINAL EXAMINATION