



UNDERSTANDING AND USING SOIL TESTING

This course focuses on measuring and managing soil chemical properties. Topics covered include soil pH, cation exchange capacity, soil sampling techniques, and different soil test extraction and quantification methods. Dr. Soldat will then cover different ways to interpret soil test results including SLAN, BCSR, and MLSN.

Instructor: Doug Soldat, PhD
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Course Structure

This course is organized into three one-week units. Each week will have two video lectures and a short 10-question quiz. Students should contact Doug with questions related to the course content or with questions about Masterio, quizzes, grades etc. The preferred method of communication is the instructors email listed above. Any general questions about GreenKeeper University should be directed to help@greenkeeperapp.com.

Course Content

Both video lectures will be posted at the beginning of the week at the course's Masterio site (<http://gku.greenkeeperapp.com>). A PDF copy of the lecture slides materials will be posted below each video link. Supplemental readings will also be post below the video lectures, when applicable. The supplemental content is not required to pass the weekly quizzes. They are designed to provide additional information about a topic. Video lectures are approximately 45-60 minutes in length.

Weekly Quizzes

Each week concludes with a 10-question quiz. They are designed to emphasize the core concepts from the past week. Quiz questions are displayed one-at-a-time with immediate feedback to help student understand why an answer is correct or incorrect. While GreenKeeper University courses are not graded, students must earn a 70% on a quiz to pass that week. Quizzes can be taken as many times as possible to earn a passing grade.

The course will be completed, and 1 credit will be earned once a student passed all three quizzes.



COURSE TOPICS & SCHEDULE

SECTION 1: BASIC TRAINING: LEARNING THE FUNDAMENTALS OF TURFGRASS SOIL FERTILITY AND SOIL TESTING

Lecture 1 – Basics of soil chemistry and turf fertility

- Essential elements and tissue nutrient content; plant and controls on nutrient uptake.

Lecture 2 – What is a soil test and how does it work?

- Brief history of soil testing and overview of modern soil testing procedures
- Discuss sampling, nutrient extraction, interpretation, and calibration.

SECTION 2: THERE IS A RIGHT WAY AND A WRONG WAY TO SOIL TEST

Lecture 3 – The base cation saturation ratio theory and why you need to avoid it

- History of BCSR concept, review research about the efficacy of BCSR, understanding how to recognize a BCSR-style interpretation

Lecture 4 – Reliable interpretation methods for turfgrass soil tests

- The SLAN method and its derivatives, soil testing and disease interactions, understanding the pitfalls of all soil testing interpretations.

SECTION 3: OTHER ASPECTS OF SOIL TESTING

Lecture 5 – Soil testing for organic matter

- What is soil organic matter? Designing a sampling plan for measuring organic matter in soil and using data on organic matter to make management decisions.

Lecture 6 – Soil testing for salinity and sodium

- Problems with salinity and sodium, turfgrass tolerances to salinity, how to monitor soil salinity/sodicity using soil tests, how to correct for problems.