



## PRECISION TURFGRASS MANAGEMENT

Precision turfgrass management uses observations, data, and models to improve management efficiency in turfgrass systems. This course will cover turfgrass growth potential, various turf and pest models, manipulation of growth with nitrogen and PGR programs, clipping volume, crop sensors, mapping data and construction of prescription maps for precision applications with variable rate sprayer systems.

**Instructor:** Bill Kreuser, Ph.D.  
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### ***Course Structure***

This course is organized into six units. Each week will have two video lectures and a short 5- to -10 question quiz. Students should contact Bill or Michael 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](mailto:help@greenkeeperapp.com).

### ***Course Content***

All video lectures will be posted on the course's Masterio site (<http://gku.greenkeeperapp.com>). A PDF copy of the lecture 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 5- to -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 2 credits will be earned once a student passes all six quizzes.**



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## COURSE SCHEDULE

- SECTION 1: DATA DRIVES PRECISION TURFGRASS MANAGEMENT**  
Precision turf management, types of data in turf, visualizing and interpreting data.
- SECTION 2: ALL MODELS ARE WRONG BUT SOME ARE USEFUL**  
Agronomic and weather models, growth rate management, clipping volume discussion.
- SECTION 3: WEATHER, WATER, AND SOIL MOISTURE VARIABILITY**  
Weather sources, stations, networks, APIs, ET, moisture meters, and spatial variability.
- SECTION 4: REMOTE SENSING OF STRESS IN TURFGRASS**  
Multi-spectral data and indices, sensor platforms, distinguishing stress, machine learning.
- SECTION 5: GPS, MAPPING AND PRESCRIPTION MAPS**  
GPS theory and receivers, GPS corrections, GIS software, prescription mapping.
- SECTION 6: PRECISION APPLICATION TECHNOLOGY**  
Drones, variable rate sprayer technology, prescription N fertilizer and disease applications.