



WEED IDENTIFICATION AND CONTROL

This course will provide a fundamental understanding of weed ecology, an extensive overview of all major cool- and warm-season weeds, and integrated pest management strategies for their control. Chemical management with a heavy emphasis on pesticide resistance and rotation will be covered in-depth and the latest findings from university led research will be covered.

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Course Structure

This course is organized into nine units. Each week will have two video lectures and a short 10 question quiz. Students should contact Dr. Patton 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

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 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 3 credits will be earned once a student passes all nine quizzes.



COURSE SCHEDULE

SECTION 1: INTRODUCTION TO TURF WEED CONTROL

Lecture 1 - Introduction

- Who is your instructor and what are our aims for this semester?

Lecture 2 – What makes turf weed control unique?

- Unique aspects of managing weeds in turf systems, Weed identification resources

Lecture 3 – Seven principles for outstanding weed control

Lecture 4 – How to use “Turf Weed Control for Professionals”

SECTION 2: WEED ECOLOGY AND HERBICIDE BASICS

Lecture 5 – Weed ecology

- How do habitat and management influence weed populations?

Lecture 6 – Turf weeds and herbicide primer

- An identification of the most common weeds of turf
- A quick herbicide primer on nomenclature

Lectures 7 & 8 – Weed Identification practice session

Lecture 9 – Developing a weed management program: Part I

SECTION 3: A REVIEW OF HERBICIDE MODE OF ACTION AND RESISTANCE

Lecture 10 – Herbicide Mechanism of Action, Part 1

- Introduction to the different mechanisms (Groups 1- 4)
- Definitions and WSSA MOA
- Symptomology from differing MOAs

Lecture 11 – Herbicide Mechanism of Action, Part 2

- Introduction to the different mechanisms (Groups >5)
- Symptomology from differing MOAs

Lecture 12 – Herbicide resistance introduction

- Current status of resistance, terminology and definitions, diagnosing resistance

SECTION 4: DIAGNOSING AND PREVENTING HERBICIDE INJURY

Lecture 13 – Avoiding herbicide injury to your turf

- Selectivity, adjuvants, and more
- Environmental effects promoting injury
- Labels and manufacturer guidance

Lecture 14 & 15 – Diagnosing Herbicide Injury

- Case study review of herbicide injury examples



Sections 5 – 9 will emphasize identification and management of specific weed groups

SECTION 5: SUMMER ANNUAL GRASS BIOLOGY AND CONTROL

Lecture 16 – Crabgrass biology and control

- Ecological factors influencing crabgrass development, cultural control of crabgrass
- Other summer annual grass problems

Lecture 17 – Control of summer annual grasses with preemergence herbicides

- What options are available? How do these herbicides work? Why do these herbicides fail?

Lecture 18 – Control of summer annual grasses with postemergence herbicides

- What options are available? When should I use them? How can I maximize the efficacy of postemergence herbicides?

SECTION 6: ANNUAL BLUEGRASS BIOLOGY AND CONTROL

Lecture 19 – Annual bluegrass (*Poa annua*) biology and control

- Ecological factors influencing annual bluegrass development
- Cultural control of annual bluegrass

Lecture 20 – Control of annual bluegrass in cool-season turf

- What herbicide options are available? What about plant growth regulators?

Lecture 21 – Control of annual bluegrass in warm-season turf

- What herbicide options are available? When should I use them? How can I maximize the efficacy of postemergence herbicides? What resistance issues am I facing with annual bluegrass?

SECTION 7: SEDGE BIOLOGY AND CONTROL

Lecture 22 – Yellow nutsedge control

- Biology of yellow nutsedge
- Chemical control of yellow nutsedge in cool- and warm-season turf

Lecture 23 – Identification and control of other problematic sedges

- Biology and identification of other problematic sedges
- Chemical control of other sedges in cool- and warm-season turf

Lecture 24 – Managing weeds on different turf sites

- What herbicides are labeled for which site? What state regulations may govern herbicide use on those sites?



SECTION 8: ANNUAL BROADLEAF AND PERENNIAL GRASS CONTROL

Lecture 25 – Summer annual broadleaf weed management

- Prostate spurge as an example in cool-season turf

Lecture 26 – Winter annual broadleaf weed management

- Purple deadnettle and henbit as examples in warm-season turf

Lecture 27 – Cool-season perennial grassy weed identification and management

- Several examples

Lecture 28 – Warm-season perennial grassy weed identification and management

- Several examples

SECTION 9: PERENNIAL BROADLEAF CONTROL

Lecture 29 – Biology and control of common dandelion

- Biology, distribution etc.
- Efficacy of postemergence herbicides
- Case study examples

Lecture 30 – Biology and control of white clover

- Biology, distribution etc.
- Efficacy of postemergence herbicides
- Controlling similar trifoliolate species

Lecture 31 – Biology and control of Canada thistle

- Biology, distribution etc.
- Efficacy of postemergence herbicides
- Controlling thistle in native areas and landscape beds

Lecture 32 – Developing a weed management program: Part II

- *Poa annua* control with PGRs, building programs, and PGR oddities