Weed Management, PS634
Course Syllabus, Fall 2024 Revision 0.0

Plant Sciences (54694) (dept code = PLSC 634-001) Advanced Weed Science Principles
Lecture fully online


| | |
|---|---|
| Course Text: | text/ lectures associated with class available online |
| Instructor: | Dr. Thomas C. Mueller, Professor of Weed Science |
| Office: | 252 Plant Biotech Building |
| Office hours: | online by appointment |
| Phone: | Office: 865-974-8805 |
| E-Mail: | tmueller@utk.edu |


Specific Course Objectives

To build on previous learning of weed science classes to control weeds using chemical, cultural, mechanical, and other methods using integrated weed management.

Focus areas include weed inter-relations with other plants and herbicide action in plants

Class material will be disseminated using electronic methods.

A regularly scheduled online discussion session will be established to allow student-Mueller interactions. Details will be arranged online to meet student's individual circumstances.

## Rules for class:

1. All class lectures are online (no in person instruction)
2. All exams and quizzes will be fully face to face in class (via proctor for off campus sites)
3. All students are asked to email tmueller@utk.edu
4. Further information will be emailed directly to each student
5. No cheating (these are NOT group projects)
6. Exam procedures:
   a. Mueller will establish test dates/times
   b. Mueller will email proctors at WTREC exam materials for individual students to individually take hard copy exam (note: These are NOT group projects)
   c. Some exams will be face to face (in person or virtual) as designated by Mueller in coordination with student's schedules.

Syllabus and lecture and labs subject to change with notice

****Syllabus subject to change with notice Weed Science 634********

Criteria for Grade Determinations

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Grading will be consistent with University Policies.

## Dates of each exam will be emailed to students once time/dates are determined

| | | points |
|---|---|---|
| Exam 1 (A) | Weed names, herbicide names | 100 |
| Exam 2 (B) | Weed Science Principles | 200 |
| Exam 3 (C) | Herbicide – Plant Interactions | 150 |
| Exam 4 (D) | Herbicide Modes of Action and Resistance | 300 |
| Writing project | Writing Project | 100 |
| Final Exam | individual, Oral exam for each student (may be waived by Mueller at his discretion) | 150 |
| | Total points possible | 1000 |
| **TOTAL POSSIBLE POINTS** | | **1000** |

Grading Scale:

| TOTAL POINTS | |
|---|---|
| 900 - 1000 | A |
| 880 - 899 | B+ |
| 800 - 879 | B |
| 780 - 799 | C+ |
| 700 - 779 | C |
| 600 - 699 | D |
| < 600 | F |

Syllabus and lecture and labs subject to change with notice

| Master list of lecture topics | | | | | | |
|---|---|---|---|---|---|---|
| Video code | topic | comments | presenter | Exam/ grade | exam date | points |
| NONE | Terminology, weed names, herbicide names | no video | Mueller | A | TBD | 100 |
| Chap 1 | Introduction to weed science | | Mueller | B | | |
| Chap 2 | Soils review | | JEB | B | | |
| Chap 3 | Plants review | | JEB | B | | |
| Chap 4 | Weed Ecology | | Mueller | B | | |
| Chap 5 | Weed Population Dynamics | | Mueller | B | | |
| Chap 6 | Weed Effects | | Mueller | B | | |
| Chap 7 | Environmental fate of herbicides | | Mueller | B | | |
| Chap 8 | Weed Control Methods | | Mueller | B | TBD | 200 |
| 1 | Introduction, Course format | | Mueller | C | | |
| 2 | Herbicide/Plant Interactions Overview | | Tranel | C | | |
| 4 | Weed Resistance Mechanisms | | Tranel | C | | |
| 5 | Herbicide Behavior in Soils | | Mueller | C | | |
| 7 | Herbicide Application in 2017 | | Mueller | C | | |
| 15 | Transgenic Crops, an Overview | | Gaines | C | | |
| 17 | Safeners and Adjuvants | | Shaner | C | | |
| 19 | Herbicide Non-Performance (Summary) | | Sikkema | C | | |
| 20 | Insecticide/Herbicide MOA interactions | | Mueller | C | | |
| 21 | Crop Injury from herbicides (Summary) | | Sikkema | C | TBD | 150 |
| 3 | MOA & Resistance of ACCase | ACCase | Sikkema | D | | |
| 6 | MoA & Resistance of ALS | ALS | Tranel | D | | |
| 8 | MoA & Resistance of PPO | protox IX | Tranel | D | | |
| 9 | MOA & Resistance of Glyphosate | EPSPS | Duke | D | | |
| 10 | MOA & Resistance of Glufosinate | | Gaines | D | | |
| 11 | MOA & Resistance of VLCFA, Lipids | VLCFA, lipid synthesis | Shaner | D | | |
| 12 | MOA & Resistance of Auxins | hormone mimics | Gaines | D | | |
| 13 | MOA & Resistance of mitotis | mitosis | Shaner | D | | |
| 14 | MOA & Resistance of Bleachers | bleachers | Gaines | D | | |
| 16 | MOA & Resistance of PSII, PSI | photosynthetic inhibitors, PS II & PSI | Duke | D | | |
| 18 | Miscellanous MOA and Resistance | | Duke | D | TBD | 300 |
| | Individual Oral Final Exm (Zoom) | | | E | TBD | 150 |
| | writing project | | | F | TBD | 100 |
| | Total for class | | | | | 1000 |
| | | | | | TBD = to be determined | |