

INTEGRATED WEED MANAGEMENT - PLS 5632c

Department of Agronomy
University of Florida
Fall Semester, 2023

- Instructor: Greg MacDonald
2059 McCarty Hall, **Phone:** 352-294-1594
E-Mail: pineacre@ufl.edu
- Class Schedule: 8:30 am - 9:20 am, Period 2; Tuesday and Thursday
Room 2196 McCarty Hall B
- Prerequisites: Introductory plant science (PLS 3004 or equivalent)
- Course Description: This 3-credit course will provide students with a better appreciation of, and competencies needed for a fundamental understanding of weed science. Students will gain basic knowledge of weed biology and ecology, an introduction to weed management techniques and methodologies, factors affecting weed control, and environmental issues (emphasis on chemical weed control) associated with weed management. Topics covered in the laboratory: weed identification, crop/weed competition, application techniques including effective herbicide use and current weed control practices.
- Course Objective: To provide students with an appreciation and better understanding of the discipline of Weed Science.
- Office Hours: Tuesday and Thursdays - 9:30 am to noon, or by appointment
- Laboratory: Teaching Assistant – Shelby Nipper
Tuesday: 3:00 p.m. - 4:55 p.m. – Periods 8-9
Weed Science shop (Building 258)
- Class Attendance:
Lecture: Attendance is not mandatory but students will be responsible for all information presented.
Lab: Laboratory attendance is mandatory - be prompt.

"Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

[https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.](https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx)"

Textbooks: **RECOMMENDED:** "Weed Science: Principles and Applications (3rd edition)," by W. P. Anderson, West Publishing Co., 1996.

Grading System: In class quizzes - 6 total, one drop (15%), 2 exams (30%), final exam (20%), laboratory (20%) and collection project (15%). Exam dates are listed in class syllabus but subject to change. Exams are not cumulative, but information gained from previous sections will be needed to fully answer questions on subsequent exams. *Graduate students will prepare a weed collection notebook (see last page for criteria) that will comprise 15% of their course grade.*

Course Grading Scale: For University of Florida grading policy see: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

The following grading scale will be used in this class.

Point range (%)	Letter Grade	GPA Equivalent
93.0 – 100	A	4
90.0 – 92.9	A-	3.67
87.0 – 89.9	B+	3.33
83.0 – 86.9	B	3
80.0 – 82.9	B-	2.67
77.0 – 79.9	C+	2.33
73.0 – 76.9	C	2
70.0 – 72.9	C-	1.67
67.0 – 69.9	D+	1.33
63.0 – 66.9	D	1
60.0 – 62.9	D-	0.67
< 60	E	0

Course Evaluation: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when

they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

Student Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Cell Phone, Laptop, etc. Policy:

Please restrict the use of these devices for classwork while in class unless taking notes. Taking pictures of slides is strictly forbidden and considered an infringement of copyright.

UF Counseling Services and Student Resources:

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are

available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu*
 - *Counseling Services*
 - *Groups and Workshops*
 - *Outreach and Consultation*
 - *Self-Help Library*
 - *Wellness Coaching*
- *U Matter We Care, www.umatter.ufl.edu/*
- *Sexual Assault Recovery Services (SARS)*
- *Student Health Care Center, 392-1161*
- *University Police Department - 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>*

Academic Resources:

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <http://www.crc.ufl.edu/>

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>

Student Complaints: <http://www.distance.ufl.edu/student-complaint-process>

Software Use: All faculty, staff and students of the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

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Class Outline

Introduction to Weed Science
impacts, definition

Weedy Plant Characteristics
classification, survival strategies

Weed Biology – weed seed biology

Quiz # 1 - September 12

Weed Biology
seed and vegetative reproduction

Quiz # 2 – September 19

Weed Crop Competition/Interference
Definition, terms and factors

Weed Crop Competition/Interference
Mechanisms; allelopathy, parasitism

Test # 1 - September 28

Introduction to Weed Management
definition, overview of methods

Weed Management Strategies (thru cultural)

Quiz # 3 - October 10

Continue Weed Management Strategies
Biological, mechanical weed management

Quiz # 4 – October 17

Herbicides (chemical weed management)
economics, pesticide laws, herbicide
toxicology, environmental fate, herbicide
application methods, herbicide plant interactions

Test # 2 – October 26

Herbicide Classification, Mode-of-Action

Lecture Date(s)

August 24, 29

August 31, September 5

September 7

September 14

Sept. 19, 21

Sept. 26

October 3

October 5

Oct. 10, 12

October 17, 19, 24

October 31, November 2

photosynthetic inhibitors, cell membrane disruptors Nov. 7

Quiz # 5 – November 9

cell division/growth inhibitors Nov. 14

amino acid, fatty acid synthesis inhibitors Nov. 16

Quiz # 6 – November 21 – online, no class

pigment synthesis inhibitors and growth regulation Nov. 28

Integrated Weed Management – pulling it all together November 30

Test # 3 – December 5 (in class last day)

LABORATORY SYLLABUS

Integrated Weed Management – PLS 5632

Fall 2023

- Instructor:** Greg MacDonald, Shelby Nipper
- Time:** Tuesday afternoons from 3:00 to 5:00 PM
- Place:** All labs will begin in Building 258 (Weed Science Shop) unless otherwise directed.
- Office Hours:** Should you need any help with lab material please feel free to email, call, or stop by my office.
- Weed ID Book:** Students will be required to purchase a blank book to be used for seed and seedling identification and as a quiz study aid. More information will be provided during the first lab session. Books must be turned in by September 12, 2023 (see lab schedule).
- Quizzes:** There will be quizzes on plant ID, calibration, safety, herbicide symptomology (please see syllabus for dates and material covered). Quizzes will be given at the beginning of each lab. Students will be responsible for the common (correctly spelled) and scientific name (credit will be given only to recognizable names) of the plant species covered (for the identification portion of the lab).
- Attendance:** Attendance for lab is mandatory. Absences will be excused if an 'official' note is provided.
- Grading:** The laboratory will account for 20% of the course grade and will be assessed as follows:
Seedling notebook - 15%
Homework assignments - 20%
Quizzes - 25%
Lab midterm - 20%
Lab final exam - 20%
- The weed collection is 15% and counted as separate from the lab.
- Late homework policy: Homework assignments will be accepted late for up to one week following the due date. Up to 20 points will be deducted from your grade if the assignment is turned in during this period.

PLS 5632
Fall 2023 Lab Schedule

DATE	LAB	TOPIC	ASSIGNMENT
August 29	1	Introduction to Weed ID	
September 5	2	Seedling ID and Notebook Prep	
September 12	3	Weed ID: Agronomic and pasture weeds	Seedling notebooks due
September 19	4	Weed ID: Turf & Ornamental weeds	Quiz—Agronomic and pasture weeds
September 26	5	Weed ID: Aquatic & Invasive weeds	Quiz – Turf, Ornamental
October 3	6	LAB MIDTERM - Weed ID	
October 10	7	Weed competition	
October 17	8	Mechanical, Biological Weed Control	Competition homework due
October 24	8	Herbicide formulations Calibration—Part 1	
October 31	9	Herbicide application equipment Calibration - Part 2	Quiz on Calibration Calibration Homework due
November 7	10	Pesticide safety Surfactants and Adjuvants	Quiz on Calibration Calibration Homework due
November 14	11	Herbicide Fate in Environment	
November 21	12	Herbicide Symptomology	
November 28	LAB FINAL – everything since midterm, no plant ID		

Weed Collection Instructions - Fall 2023
Integrated Weed Management – PLS 5632
Due November 29, 2023

Please find below a list of the weeds for which you are responsible for a weed collection notebook. For each category you are responsible for identification, both common and scientific name, of the weeds.

For the plant collection notebook, please use 8.5 x 11 sheets of paper and include the information listed above plus the location of the collected specimen. No line drawings are needed for the grasses. Use all available techniques for attaching the plant to the paper – super glue, tape, rubber cement, etc., as long as it doesn't ruin the integrity of the mount. One suggestion is to buy a cheap spiral notebook and press/mount in it. The plants can be placed between the pages to dry and then mounted in place. It's also bound together so plants can't fall out as easily during collection times, compared to single sheets.

Most of weeds I would like you to collect are common weeds of southern turfgrasses. The list is as follows:

- 1). three sedges (Cyperaceae)
- 2). 15 grasses (Graminae/Poaceae), including at least 1 crabgrass, goosegrass, and 3 perennials
- 3). 2 Amaranthaceae
- 4). 10 Compositae/Asteraceae
- 5). 2 Euphorbiaceae
- 6). 2 Labiatae
- 7). 8 Leguminosae/Fabaceae
- 8). 5 Rubiaceae
- 9). 15 others (any family)
- 10). 15 invasive plants from the Center for Aquatic and Invasive Plants website <http://plants.ifas.ufl.edu/plant-directory/>