

PLNT_S 8420
Herbicide Mode of Action and Symptomology
Course Syllabus and Schedule

Course Description: This course is designed for graduate students pursuing a professional career in a weed science or agronomy-related discipline. The objectives of this course are for students to gain an understanding of the in-depth processes by which herbicides interrupt normal plant growth and development at a tissue, cellular, and enzymatic level. Additionally, students will gain an understanding of the critical thought process required for field-scale problem solving, and will learn to diagnose visual symptoms of herbicide injury on some of the major field, ornamental, and vegetable crops grown throughout the U.S. This course will build on the introductory principles of herbicide injury diagnosis that students learn in an undergraduate course, Principles of Weed Science (PLNT S 3210), but will provide a thorough explanation of each herbicide mode of action group, as well as the means by which plants have evolved resistance to these processes.

Meeting Times and Locations: This course will be taught for 8 weeks during the semester and will meet twice each week. Each lecture will be 75 minutes in length.

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Required Texts and Materials: Herbicide Handbook, 9th Edition. Weed Science Society of America, 801 E. 10th Street, Lawrence, KS. (ISBN 1-891276-56-5). Students will also be provided with *Practical Weed Science for the Field Scout*, MU IPM Publication IPM1007. All other required materials such as handouts, journal articles, etc. will be provided prior to the class discussion pertaining to that topic.

Absences and Late Policy: If a student is unable to attend a class session, it is the student's responsibility to obtain the necessary notes from other classmates. Assignments not turned in on time will be penalized 10% for each day the assignment is late.

Prerequisite: Principles of Weed Science (PLNT_S 3210) required; Advanced Weed Science (PLNT_S 8410) suggested.

Grading Scale:

Numerical Grade	Letter Grade
90+	A
80-89	B
70-79	C
Below 70	F

Grade Components:

Component	% of Total Grade
Exam 1	25
Exam 2	25
Exam 3	25
Review Paper	15
Problem Solving Report	10

Tentative Course Syllabus:

Week	Lecture Topic
Week 1	Importance of Understanding Herbicide Mode of Action and Symptomology (Terminology; Approaches to Herbicide Discovery, etc.) Herbicide-resistant weeds (History; Current Status; Importance; Management, etc.)
Week 2	Herbicide Mode of Action, Resistance, and Symptomology - Photosynthetic Inhibitors - Cell Membrane Disruptors
Week 3	Herbicide Mode of Action, Resistance, and Symptomology - Pigment Inhibitors <i>Exam 1 (25%)</i>
Week 4	Herbicide Mode of Action, Resistance, and Symptomology - Growth Regulators - Lipid Synthesis Inhibitors <i>Review Paper Assignments Due (15%)</i>
Week 5	Herbicide Mode of Action, Resistance, and Symptomology - Seedling Growth Inhibitors - Amino Acid Synthesis Inhibitors
Week 6	Herbicide Mode of Action, Resistance, and Symptomology - Amino Acid Synthesis Inhibitors <i>Exam 2 (25%)</i>
Week 7	Application of herbicide injury symptomology to problem solving in the major field, vegetable, and ornamental crops.
Week 8	Application of herbicide application calculations to problem solving in the major field, vegetable, and ornamental crops. <i>Exam 3 (25%)</i> <i>Problem Solving Report Due (10%)</i>

Academic Dishonesty and Plagiarism: Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

Students with Disabilities: If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible. If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Office of Disability Services (<http://disabilityservices.missouri.edu>), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.