

BI 310 - Syllabus Fall 2007

FUNDAMENTALS OF PESTICIDES

General

2 credits

3:00 - 4:50 Tuesdays (with a 10 minute break at 3:50)

Room E005 of the Plant Sciences Building

Prerequisites: introductory course in biological science and introductory chemistry

Instructor:

Sandra K. McDonald, CSU Environmental & Pesticide Education Specialist

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Course Description

The class will emphasize identification, properties, use, labeling, and application of the major classes of pesticides. Pesticide-environment interactions and the laws regulating pesticide use will be discussed. Public awareness of pesticide use and their potential side effects demands that these chemicals be used safely and effectively.

This course will discuss and demonstrate the safe and effective use of chemicals in landscape, turf, industrial/institutional settings, production agricultural systems, and residential/commercial settings. Safety as it relates to the applicator, the environment, plant materials, and public concerns will be stressed.

Objectives

- A. To become familiar with the properties of the range of inorganic and organic chemicals used to control major pests in agricultural and horticultural crops, turf and managed landscapes, and residential and commercial settings.
- B. To understand appropriate pesticide use, application and safety.
- C. To know the advantages and disadvantages of pesticide use.
- D. To understand the role of pesticides in integrated pest management.
- E. To evaluate and use proper environmental safety precautions associated with chemical application.
- F. To relate relevant laws and regulations to chemical applications.

- G. To demonstrate a knowledge of the infrastructure and sources of pesticide information and management.
- H To prepare students to take the Colorado Pesticide Applicator Certification Examination. (NOTE: the class will not be based on the certification examination nor teach specific material from the examination.)

Text - Note assigned reading topics.

Buffington, E.J. and S.K. McDonald. 2001 (Revised 12/06). *General - Colorado Commercial Pesticide Application and Safety Training Study Guide*. Colorado State University Resource Center C100, Fort Collins, CO.

Available from the University Resource Center (URC) in the General Services Bldg.

General Organization and Requirements

A. Class Participation. The class will meet Tuesday from 3:10 - 4:50 p.m. Each class session is important and material will not be repeated. Attendance is expected and failure to attend may lower your grade. Lecture material will be taken from many sources and will not duplicate all of the reading material.

B. Pesticide Label. Students are asked to bring in a copy of a pesticide label on September 11, 2007. There are many internet sites where labels can be accessed and printed (see Resources). No labels will be accepted after the due date. The labels that students turn in will be used in future lectures and on exams. Thus it is important for students to choose labels of interest to them.

C. Pesticide Application/Recommendation Activity. Based on each individual's interests a pesticide application/recommendation activity will be developed. The activity will assigned October 9, 2007 and will be due November 13, 2007.

C. Pesticide Factsheet. A writing assignment is required, specifically a **Pesticide Factsheet** designed to provide a specified audience with information throughly summarizing a topic of choice. Each student should select a topic no later than September 18. No two students may select the same topic, even if addressing different audiences. Factsheets will be due November 27, 2007. If (any and/or all) of the factsheets are of high enough quality they will be posted on the CEPEP website with the student getting the authorship credit. Factsheets turned in up to one week late will have 10% deducted from the initial grade. Factsheets turned in more than one week late will not be graded; a grade of zero will be recorded.

Grading of the factsheet will be approximately as follows:

Subject	Relevance and importance, topic and audience clearly defined	15%
Content	Amount, accuracy and value of information; adequacy and analysis of supporting data; logical interpretation; depth of understanding	50%
Organization	Logical development	10%
Resources	Current, relevant, used well, appropriately referenced	10%
Format	Neatness, margins and headings	5%
English usage	Punctuation, sentence structure, spelling, grammar, word use	10%

D. Media Scrapbook. Throughout the semester the students will be expected to look/listen for instances of pesticides in the media (newspaper, magazines, NPR, nightly news, etc.) and assemble them into a scrapbook. A minimum of ten (10) media pieces is required. A critique (critical look) of the information is also required. The critique must discuss factual accuracies or inaccuracies; any bias in the information and what could have been done to make the information more objective. The Media Scrapbook will be due December 4, 2007. Scrapbooks turned in up to one week late will have 10% deducted from the initial grade. Scrapbooks turned in more than one week late will not be graded; a grade of zero will be recorded. Be prepared to share at least one article and critique with the class on December 4, 2007.

F. Take-Home Examinations. There will be two take-home exams administered during the semester. All students will have one week to complete the exam. Anyone missing the class session when the exam is handed out is expected to see the instructor as soon as possible. Picking up the exam late will not alter the due date. The exam will be due at the beginning of class on the due date. Exams turned in up to one week late will have 10% deducted from the initial grade. Exams turned in more than one week late will not be graded; a grade of zero will be recorded. Answers on the exam must reflect each individual's work.

G. Final Exam. The final exam will be comprehensive, closed book. The final exam will cover all lectures and readings. The final is scheduled on Friday, December 14, 2007 from 9:10 am to 11:10 am.

H. Cheating on examinations and plagiarism on factsheets is not acceptable and will result in a failing or zero grade for the assignment. Plagiarism is the use of another's thoughts or words as if they were your own. Whenever you use a general concept, idea, quotation, fact, statistic, or illustration that is not yours, cite the source in the text and list the source at the end of the paper or as a footnote. If you are in doubt, ask. The minimal penalty for plagiarism is failure for that particular project. The maximum penalty is expulsion from the University.

Grading

A = 900 - 1,000 points

B+ = 860 - 899 points

B = 800 - 859 points

C+ = 760 - 799 points

C = 700 - 759 points

D = 600 - 699 points

F = below 600

Point Structure

Label Exercise = 50 Points

Take-home Exam 1 = 150 Points

Pesticide Application Activity = 100 Points

Take-home Exam 2 = 150 Points

Pesticide Factsheet = 150 Points

Media Scrapbook = 100 Points

Calibration Problems = 50 Points

Class Participation = 50 Points

Final Exam = 200 Points

BI 310 - Fundamentals of Pesticides Relevant Websites

Colorado Environmental and Pesticide Education Program

<http://www.colostate.edu/Depts/SoilCrop/extension/CEPEP/>

US Environmental Protection Agency Office of Pesticide Programs

<http://www.epa.gov/pesticides/>

Colorado Department of Agriculture - Division of Plant Industry

<http://www.ag.state.co.us/DPI/home.html>

EXTOXNET - The EXTension TOXicology NETwork

<http://ace.orst.edu/info/extoxnet/>

National Pesticide Information Center - Objective, science-based information on pesticides related topics

<http://npic.orst.edu/>

Crop Data Management Systems, Inc. - Label & MSDS information

<http://www.cdms.net/manuf/manuf.asp>

Greenbook for Agricultural Products - Label & MSDS information

<http://www.greenbook.net>

Bluebook for Turf & Ornamental Products - Label & MSDS information

<http://www.greenbook.net/turf&specialty.asp>

The Agricultural Research Service (ARS) Pesticide Properties Database

<http://www.ars.usda.gov/Services/docs.htm?docid=14199>

USGS - Pesticide National Synthesis Project

<http://ca.water.usgs.gov/pnsp/>

USDA Animal & Plant Health Inspection Service (APHIS)

<http://www.aphis.usda.gov/>

Fundamentals of Pesticides
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Date	Lecture	Resource
Aug. 21	Introduction / Overview/ Terminology	handout
Aug. 28	Laws and Regulations Discuss Factsheet & Label Assignments	General pp. 7-24
Sept. 4	Consumer Issues / Public Perspective Discussion Discuss Media Scrapbook Assignment	
Sept. 11	Pesticide Development - From the Lab to Label Label Assignment Due	
Sept. 18	Labels - Types of Labels and MSDS Factsheet Topics Due Exam 1 - Take home exam handed out, due September 25 th	General pp. 25-36
Sept. 25	Pesticide Formulations, Carriers, Other Ingredients and Adjuvants Exam 1 - Take home exam due	General pp. 37-54
Oct. 2	Pesticide Fate in the Environment - Degradation, Movement and Persistence	General pp. 97-105
Oct. 9	Protecting the Environment - Storage, Spill Management and Disposal Discuss Pesticide Application Activity	General pp. 83-96 106-110
Oct. 16	Pesticides Hazards / Risk Assessment	General pp. 61-71
Oct. 23	Personal Protective Equipment - Selection, Use and Care Exam 2 - Take home exam handed out, due October 30 th	General pp. 71-81
Oct. 30	Pesticide Application, Equipment and Calibration Exam 2 - Take home exam due Calibration Problems - practice problems	General pp. 111-150
Nov. 6	Types of Pest Management Calibration Practice Problems due	General pp. 55-60
Nov. 13	Types of Pest Management Pesticide Application Activity due	General pp. 55-60
Nov. 27	Pesticide Resistance and Resistance Management Factsheet due	
Dec. 4	Future of Pesticides Media Scrapbook due	
Dec. 14	Final Exam - 9:10 am - 11:10 am - comprehensive	