# AOM5334C Agricultural Chemical Application Technology

Fall, 2025
In-person, 3 Credits

## Instructor

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In-person office hours: I have an open-door policy. You are welcome to visit me whenever I am available or by appointment.

## Teaching Assistant

[To be determined]

## Course Description

AOM 5334C Agricultural Chemical Application Technology. F. *Credits: 3.* Equipment and methods used to apply pesticides in agriculture. Emphasis on techniques to avoid misapplication and pesticide drift.

## Course Learning Objectives

1. To be familiar with agricultural pests and the measures for controlling them.
2. To understand different sprayer components and learn how they work.
3. To be able to calibrate different types of spray equipment properly. Special emphasis will be placed on using the proper equipment and techniques for applying pesticides.
4. To become familiar with pesticide laws, labels, and safety

## Course Prerequisites

Junior/Senior standing in the College of Agricultural and Life Sciences and other related disciplines, or instructor approval. Minimum technical skills include basic math and logical thinking skills.

## Textbooks

*SM 53 Private Applicator Agricultural Pest Control,* 4th Edition, by Frederick M. Fishel, UF/IFAS Communication Services, Revised 2019. (http://ifasbooks.ifas.ufl.edu/p-118-private-applicator-agricultural-pest-control.aspx). See the UF/IFAS Bookstore website: https://ifasbooks.ifas.ufl.edu/.

*SM 1 Applying Pesticides Correctly:* A Guide for Pesticide Applicators (CORE), 7th Edition, by Frederick M. Fishel, UF/IFAS Communications Services, 2014 (Revised for 2015, https://ifasbooks.ifas.ufl.edu/p-104-applying-pesticides-correctly-a-guide-for-pesticide-applicators-core.aspx):

You will summarize each chapter every week during the first 9 weeks, so that you can use the summary to (1) learn the basic knowledge by yourself and (2) take a pesticide application license exam in the future. Every Monday, **starting September 8th**, you must submit a summary of each chapter in the E-Learning. Start with "Terms to Know" and include all sub-sections of each chapter. The summary should be at least three pages. Do not use any text conversion tools.

## Technical Support

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

## Weekly Course Schedule (Dates are approximate)

| Week (Date) | Lecture (Mon & Wed) | Lab (Wed) | Quiz | SM1 Summary | HW | Test |
|---|---|---|---|---|---|---|
| 1 (8/25) | Module 1 – Pest identification and control | (Continue Module 1) | | | | |
| 2 (9/1) | Labor Day Holiday | Lab 1 – General-purpose farm sprayer | | | #1 | |
| 3 (9/8) | Module 2 – Nozzles & flow rate formula; Solve HW #1 | Lab 2 – Nozzle pressure vs. flow rate and spray patterns | #1 | Ch. 1 | | |
| 4 (9/15) | Module 3 – Sprayer parts and calibration | Lab 3 – Calibration of a general-purpose farm sprayer | #2 | Ch. 2 | | |
| 5 (9/22) | (Continue Module 3) | Test 1 (No Lecture & Lab) | #3 | Ch. 3 | | Test 1 |
| 6 (9/29) | Module 4 – Pesticide formulation and arithmetic | Lab 4 – Aerial pesticide application | | Ch. 4 | #2 | |
| 7 (10/6) | (Continue Module 4) | Lab 5 – Airblast sprayer calibration at PSREU | #4 | Ch. 5 | | |
| 8 (10/13) | Module 5 – Pumps | Solve HW #2 | #5 | Ch. 6 | | |
| 9 (10/20) | Module 6 – Granule applicators | Lab 6 – Pumps | #6 | Ch. 7 | | |
| 10 (10/27) | Module 7 – Drift and Aquatic weed control | Test 2 (No Lecture & Lab) | #7 | Ch. 8 | | Test 2 |
| 11 (11/3) | (Continue Module 7) | Lab 7 – Granular application | | Ch. 9 | #3 | |
| 12 (11/10) | Module 8 – Laws, labels, and safety; | Pesticide applicator license exam - Category | #8 | | | |
| 13 (11/17) | (Continue Module 8 – Laws, labels, and safety); Pesticide applicator license exam | Module 9 – Variable Rate Technology (VRT); Lab 8 – VRT | #9 | | | |
| 14 (11/24) | Thanksgiving! | Thanksgiving! | | | | |
| 15 (12/1) | (Continue Module 9); Solve HW #3 | Test 3 (No Lecture & Lab) | #10 | | | Test 3 |

## Grading Policy

Course grading is consistent with UF grading policies.

## Course Grading Structure

| Assignment Type | Percent of Final Grade |
|---|---|
| **Quizzes** | 10% |
| **Lab assignments** | 10% |
| **Homework** | 5% |
| **Tests (3)** | 20% each |
| **SM1 Summary** | 5% |
| **Review paper** | 10% |

**Course grading will be based on the following items:**

1. **Quizzes** will be given every Monday at the end of the lecture. The quiz problems are from the previous week's lecture, lab exercise, and/or homework. Quizzes will help you study course materials and achieve course objectives. Quizzes cannot be made up.
2. **Lab assignments** will be handed out for every laboratory session. They will help you better understand the goals of lab exercises and facilitate opportunities to work on the calibration of various sprayers. Lab assignments should be submitted in the E-Learning.
3. **Homework** – Three sets of problems related to the calibration of pesticide application equipment will be assigned. The problems will be similar to calibration problems given on the quizzes and tests. The support numbers needed to arrive at the problem answer must be shown on the homework paper. You will receive credit if you have tried to solve them. Homework problems are from actual spray applications and help you practice solving real situations for sprayer calibration. Homework should be submitted in the E-Learning.
4. **Tests** – There will be three (3) tests. There will not be a comprehensive final examination. The test could have calculation problems similar to those in the previous test(s), but verbal questions will be tested only once. Tests will help review course materials and practice more calibration problems toward achieving course objectives.
5. **SM1 Summary** – Start with "Terms to Know" and include all sub-sections of each chapter. The SM1 summary helps you understand the core information of pesticide application, which we don't cover during lectures and lab exercises. Every Monday, starting September 8th, you must submit a summary of each chapter in the E-Learning. Each week, one to two of the best summaries will be chosen and awarded extra credit.
6. **Review Paper** – Choose a topic of interest related to pesticide application technology and write a review paper. You will have an opportunity to present your paper near the end of the semester. See page 5 for more details.
7. **All assignments should be submitted in the E-Learning**. You must submit them at least a few minutes before class to attend class on time. Email submissions will NOT be accepted.

8. **Late submission policy**: All assignments are due at the beginning of the class. Thereafter, a 10% reduction/day.

## Grading Scale

| Grade | Percentage |
|---|---|
| **A** | 91.0 – 100% |
| **A-** | 89.0 – 90.9% |
| **B+** | 86.0 – 88.9% |
| **B** | 82.0 – 85.9% |
| **B-** | 79.0 – 81.9% |
| **C+** | 76.0 – 78.9% |
| **C** | 72.0 – 75.9% |
| **C-** | 69.0 – 71.9% |
| **D+** | 66.0 – 68.9% |
| **D** | 62.0 – 65.9% |
| **D-** | 59.0 – 61.9% |
| **S** | Below 59.0% |

**Please be aware that the E-Learning gradebook uses the grading scheme for the undergraduate portion of this course and may not reflect your grade correctly. Please get in touch with me to get the correct grade.**

## Academic Policies and Resources

Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

## Campus Health and Wellness Resources

Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Please contact UMatterWeCare for additional and immediate support.

## Software Use

All faculty, staff, and students of the university 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.

## Privacy and Accessibility Policies

- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility

- Zoom
    - Zoom Privacy Policy
    - Zoom Accessibility

## Review Paper

You are required to write a review paper for this course. You can select any topic related to the course content. The following are potential journals where you can find related articles. A review article should include at least 50 research articles to describe the current status of the topic of your choice and make some recommendations for future directions. The goal is to publish your review article in a journal.

- Journal of the ASABE
- Biosystems Engineering
- Applied Engineering in Agriculture
- Journal of Agricultural Safety and Health
- Precision Agriculture
- Computers and Electronics in Agriculture
- Sensors
- ...

The deadlines for a review paper are below. Email me your submissions.

- Outline (30 pts, due Monday, Sep. 8): Describe your topic of interest including a title and summary. Please feel free to consult with me about your topic of interest.

- Progress report (70 pts, due Monday, Oct. 13): Submit your partially completed review paper including the title, introduction, summary of identified articles, and reference information.

- Final report (100 pts, due Monday, Nov. 17): Submit your completed final paper by email (wslee@ufl.edu) and PowerPoint presentation. You will present your article during class at the end of the semester for about 10-15 min.

Once you complete it, you will submit it to a journal for publication.