

AOM4642
ENVIRONMENTAL SYSTEMS FOR AGRICULTURAL STRUCTURES
FALL 2023

1. **Catalog Description:** *3 credits.* Effects of the environment on plant and animal production, processing operations and quality of stored produce. In addition, this course addresses the selection of building materials and sizing of components of environmental systems in agricultural structures to enhance more efficient agricultural production, processing and storage.

This course is a study of agricultural structures and the environment within these structures. The first part of the course focuses on understanding the components of the environment, the impact of these components on building usage, and how to control the environmental variables of the building. The second part of the course will focus on the study of the types of structures used for plant and animal production and for storage of agricultural produce. General building design issues, building codes and types of building construction are also covered.

2. **Instructor:** Dr. Ying Zhang
 - a. Office location: 103 Frazier Rogers Hall
 - b. Telephone: 352-294-6864
 - c. E-mail address: yingzhang409@ufl.edu
 - d. Course site: Canvas e-Learning
 - e. Office hours: M&W 4th and 5th Periods (10:40 am – 12:35 pm) or by appointment

To contact the professor, please email her and she will respond. **IMPORTANT:** Please allow up to 48 hours for a response, not including weekends or holidays.

3. **Meeting Times and Locations:**

T, R 3rd Period (9:35 am – 10:25 pm), ROG 0129
T 8th Period (3:00 pm – 6 pm), ROG 0110. We have field trips planned for this course. The afternoon class hours are booked for field trips. If no field trips scheduled in a week, we will have a lecture or discussion session lasting 50 minutes from 3 pm to 3:50 pm.

4. **Pre-requisites and Co-requisites:** MAC1147 and 3 credits of physics

5. **Course Objectives:**

Students, upon completing this course, will be able to:

 - a. Describe relationships between environment in structures and animal housing and plant and produce storage
 - b. Identify measurement devices used for monitoring environmental conditions
 - c. Identify key components of environmental systems, buildings, and building codes
 - d. Determine and calculate environmental conditions using psychrometrics
 - e. Evaluate construction methods and building material characteristics

6. Class/Laboratory Schedule: Listed assigned meeting times.

7. Material and Supply Fees: None

8. Required Textbooks:

There is no required textbook for this course. Handouts and online material will be provided to you that will serve as a text.

9. Recommended Reading: None

10. Computer skills requirements:

Minimum technical skills needed for success in the course include:

1. Using the Canvas learning management system
2. Creating and submitting files in commonly used word processing program formats
3. Using spreadsheet programs
4. Using presentation and graphics programs.

11. Hardware and Software Requirements:

Access to and on-going use of a computer is required for all students. Students should have access to a laptop computer with internet for course meetings. Students will need [Microsoft Office](#) products installed on their computer. In addition, students will need to access [UFApps](#), a cloud-based hosting service available free to all UF students and faculty, in order to use SketchUp, a 3D modeling software.

12. Course Plan:

Week 1 Measuring Environmental Conditions

Week 2 Heat Transfer/Lecture & Discussion/ HW1

Week 3 Reading the Psychrometric Chart & Solving Problems Using the Psychrometric Chart/Lecture & Discussion/HW2

Week 4 Insulation/ Lecture & Discussion/ HW3

Week 5 Structures for Plant Production & Alternative Agriculture/Lecture & Greenhouse Tour/HW4/Exam 1

Week 6 Storing Fresh Produce/HW5

Week 7 Environmental Modification/Lecture & Discussion/HW6

Week 8 Livestock Housing/ Lecture & Dairy Unit Tour/HW7

Week 9 Standards, Codes & Loads on Structures/Lecture & Discussion/Exam 2

Week 10 Building Materials: Concrete & Concrete Masonry/ Lecture/Group Presentation 1

Week 11 Building Materials: Steel/ Lecture/Group Presentation 2

Week 12 Building Materials: Wood//Lecture & Discussion

Week 13 Building Materials: Wood Frame Construction/ Lecture/Group Presentation 3

Week 14 Types of Structures: Hay, Silage and Grain Storage/Lecture & Discussion

Week 15 Types of Structures: Fences/Lecture & Discussion/ Term Group Presentation

13. Attendance, Expectations, and Exam Make-up Policy: Attendance (on time) at lectures is expected from all students at all times and will be recorded at every class meeting. No make-up exams will be given except for valid medical reasons or unless prior arrangements have been made. Additional information and UF policies related to attendance, expectations, make-up exams can be found in the [Undergraduate Catalog](#).

In-Class Recording. Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Online Course Recording: Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or

shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

14. Grading:

| Component | Total Points | Percentage of Final Grade |
|-----------------------------|--------------|---------------------------|
| Homework Assignments (7) | 100 each | 20% |
| Group Presentation (3) | 100 each | 10% |
| Exam 1 | 100 | 20% |
| Exam 2 | 100 | 20% |
| Term Group Presentation (1) | 100 | 20% |
| Attendance | 3 each | 10% |

Students who have questions about their grades should contact their professor by e-mail. Do NOT contact the TA about grades assigned. Grade is typically posted within one week of the deadline in Canvas.

Homework Assignments (100 pts. each). Each homework assignment will be worth 100 points and there will be 7 homework assignments during the semester. Each student must work individually. For the final course grade, homework assignments will be weighted at 20%.

Group Presentations (100 pts. each). Each group presentation will be worth 100 points and there will be 3 assignments during the semester to develop teamwork and presentation skills. For the final course grade, group presentations will be weighted at 20%.

Exams (100 pts. each). In exams, students will be asked to analyze different agricultural systems using engineering principles. Each exam will consist of a mix of multiple-choice, short-answer, and computational questions. For the final course grade, each exam will be weighted at 20%.

Term Group Presentation (100 pts.). In the middle of the semester, a term group assignment will be released. Students will be assigned to groups randomly to collaborate on the group assignment. Students need to pick a course-related agricultural system and conduct a literature review to summarize the terminologies, standards, status, and applications related to the system. For the final course grade, the group presentation will be weighted at 20%.

The group performance will be evaluated with the following rubric:

| Total | Category | 16-20 | 10-15 | 5-9 | 0-4 |
|-------|--------------------------------|---|--|---|---|
| 20 | Team Contribution | Excellent | Good | Fair | Need to improve |
| 20 | Creativity | Exceptionally clever and unique in showing deep understanding | Thoughtfully and uniquely presented | A few original touches enhance the project | Shows little creativity, originality and/or effort |
| 20 | Understanding of Content | Shows a sophisticated understanding of the themes in the course content | Shows an understanding of the major themes of the course content | Displays a somewhat limited understanding of the course content | Does not show an understanding of the course content |
| 20 | Grammar | No grammatical or mechanical mistakes in the project | A few grammatical/mechanical mistakes which are not distracting | Several grammatical/mechanical mistakes which are distracting | Many grammatical/mechanical mistakes throughout the project |
| 20 | Overall quality and completion | Project is engagingly organized and presents material that meet the assignment requirements | Project is somewhat organized, complete the basic requirements | Project is disorganized and incomplete | Project is incomplete and not easy to follow |

All of the categories will be evaluated based on team presentation and report quality except for Team Contribution. Teamwork Contribution will be assessed separately for each student with the following Self and Peer Assessment table.

Write your name and the date and write the names of your group members in the numbered boxes. In the “Yourself” box, assign yourself a value for each listed attribute. Finally, do the same for each of your group members and total all of the values. Provide any additional comments in the box at the end of the assessment form.

**Values: 1=Strongly disagree 2=Disagree 3=Neither disagree or agree 4=Agree
5=Strongly agree**

| Attribute | Yourself | 1. | 2. | 3. |
|---|----------|----|----|----|
| Was dependable in attending group meetings | | | | |
| Willingly accepted assigned tasks | | | | |
| Contributed positively to group discussions | | | | |
| Completed work on time or made alternative arrangements | | | | |
| Helped others with their work when needed | | | | |
| Did work accurately and completely | | | | |

| | | | | |
|---|--|--|--|--|
| Worked well with others | | | | |
| Overall was a valuable member of the team | | | | |
| Column Totals | | | | |

Comments:

15. Grading Scale:

- A [100.00 – 93.00%]
- A- [92.99 – 90.00%]
- B+ [89.99 – 87.00%]
- B [86.99 – 83.00%]
- B- [82.99 – 80.00%]
- C+ [79.99 – 77.00%]
- C [76.99 – 73.00%]
- C- [72.99 – 70.00%]
- D+ [69.99 – 67.00%]
- D [66.99 – 63.00%]
- D- [62.99 – 60.00%]
- E [59.99 – 0.00%]

For information on current UF policies for assigning grade points, see the Grades and Grading Policies section of the [UF Undergraduate Catalog](#).

16. Assignments: Assignments will be marked down for a sloppy presentation and, if excessive, they may be returned un-graded. All assignments must be typed and are due one week from when assigned. Assignments must be submitted via Canvas by 11:59 PM of due date. Assignments submitted late, but before 5:00 PM on the day following the due date, will be marked down 10 points. Assignments returned late,

before 5:00 PM on the second day following the due date will be marked down 50 points. No assignments will be accepted after 5:00 PM on the third day following the due date.

- 17. Health and Wellness:** You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.

- 18. Online Course Evaluation Process:** Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://gatorevals.aa.ufl.edu/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

- 19. Academic Honesty Policy:** All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others. All work must be original and completed individually.

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 [View the Student Conduct and Honor Codes](#)

The class rule for AOM4642: If identical homework assignments are found, the students will receive 0 points for the homework assignment.

20. Services for Students with 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, [Disability Resource Center](#)

21. Campus Helping Services: 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,
Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching
- *U Matter We Care*, www.umatter.ufl.edu/
- [Career Resource Center](#), First Floor JWRU, 392-1601

Student Complaints:

Residential course: [UF Complaints Policy](#)

Online course: Distance Learning [Student Complaint Process](#)

22. Software Use: All faculty, staff and student 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.