

**AOM 4461 (3 credits)**  
**Sustainable Agricultural Systems**  
**Agricultural Operations Management**  
**University of Florida**

**Spring 2025** Tuesday periods 5-6 (11:45-1:40) and Thursday period 6, (12:50-1:40), Room 129  
Frazier Rogers Hall

**Instructor:** Dr. Dan Hofstetter  
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Office hours: Tuesday and Thursday 2:00pm-3:00pm or by appointment

**Catalog Description**

Minimizing energy and costs in agricultural and natural resource systems and industries. Students explore ways to enhance sustainable systems by improving efficiency. Topics include agricultural machinery, pumps, motors, fans, refrigeration, lights, and construction methods.

**Pre-requisites/Co-requisites:**

*Senior standing & PHY 2004 or PHY 2020 or PHY2048 or PHY 2053.*

**Course Objectives**

At the end of this course, students will be able to:

1. Explain best practices for efficient operation of agricultural machinery, lighting, ventilation systems, electric motors, internal combustion engines (stationary and non-stationary), pumps, refrigeration systems, and building systems and technology.
2. Explain how sustainable practices can help reduce fixed costs and increase profitability.
3. Analyze efficient operation of agricultural operations and natural resource systems and industries.
4. Evaluate methods to enhance sustainability of systems through efficient best practices.
5. Calculate efficient operations plans for agricultural and natural resources systems and industries.
6. Estimate the economic performance of systems to reduce fixed costs or increase profitability.

**Course Outline**

Module 1. Review of current energy and water issues affecting the nation, the Southeast, and Florida.

Module 2. Energy overview of diverse agricultural operations such as nurseries, cattle ranches, row crops, and groves.

Module 3. Efficient operation of non-stationary agricultural machinery.

Module 4. Upgrading lighting technology to minimize cost and maximize efficiency.

Module 5. Ventilation systems for both plant and animal needs will be analyzed and optimized for efficient operation.

Module 6. Electric motor systems for agricultural uses will be presented.

Module 7. Stationary internal combustion engines for agricultural and natural resource uses.

Module 8. Agricultural refrigeration systems.

Module 9. Efficient operation of pumping systems.

Module 10. Building systems and certifications such as LEED.

Module 11. Case Studies.

Date	Topic	Assignments	
Tuesday, January 14, 2025	Orientation to class, class requirements, Module 1	Assign Mod1 HW1	
Thursday, January 16, 2025	Begin Module 2	Assign Mod2 HW2	
Tuesday, January 21, 2025	Module 2	Assign Mod2 HW3	Mod1 HW1 due
Thursday, January 23, 2025	Wrap-up Mod 2, begin Mod 3	Assign Project 1	Mod2 HW2 due
Tuesday, January 28, 2025	Continue Mod 3, Begin Mod 4 lighting	Assign Mod3 HW4	Mod2 HW3 due
Thursday, January 30, 2025	Continue Mod 4, lighting in animal ag examples		
Tuesday, February 4, 2025	Module 4 lighting	Assign Mod4 HW5	Mod3 HW4 due
Thursday, February 6, 2025	Continue Mod 4, Begin Mod 5 ventilation		
Tuesday, February 11, 2025	Student Project 1 meeting to present findings, Continue Mod 5 ventilation	Assign Project 2 Lighting	Project 1 due
Thursday, February 13, 2025	Continue Mod 5 ventilation		Mod4 HW5 due
Tuesday, February 18, 2025	Continue Mod 5 ventilation	Assign Mod5 HW6	
Thursday, February 20, 2025	Begin Mod 6 electric motors		
Tuesday, February 25, 2025	Continue Mod 6	Assign Mod6 HW7	Mod5 HW6 due
Thursday, February 27, 2025	Continue Mod 6		
Tuesday, March 4, 2025	Student Project 2 meeting, Begin Mod 7 engines	Assign Project 3: Audit or BMP and Final Project	Project 2 Lighting due
Thursday, March 6, 2025	Continue Mod 7 engines	Assign Mod7 HW8	Mod6 HW7 due

Tuesday, March 11, 2025	Mod 8 refrigeration systems, Begin Mod 9 pumping systems		
Thursday, March 13, 2025	Continue Mod 9 pumping systems	Assign Mod8 refrig HW	Mod7 HW8 due
Tuesday, March 18, 2025	<i>Spring break</i>		
Thursday, March 20, 2025	<i>Spring break</i>		
Tuesday, March 25, 2025	Continue Mod 9 pumping systems, Begin Mod 10		
Thursday, March 27, 2025	Mod 10 Building systems	Assign Mod9 Pumping HW	Mod8 Refrig HW due
Tuesday, April 1, 2025	Wrap-up Mod 10, Begin Mod 11 case studies		Project 3 due
Thursday, April 3, 2025	Mod 11 case studies		Mod9 Pumping HW due
Tuesday, April 8, 2025	Wrap-up Mod 11 case studies		
Thursday, April 10, 2025	Presentations day 1, seven presentations		Final Project presentation due
Tuesday, April 15, 2025	Presentations day 2, fourteen presentations		
Thursday, April 17, 2025	Presentations day 3, seven presentations		
Tuesday, April 22, 2025	Presentations day 4, seven presentations		Final Project report due
Thursday, April 24, 2025	Reading days		

This syllabus is subject to change depending on student progress and scheduling.

Time does not permit **everything** to be covered in the lectures and labs therefore, reading and homework will be assigned. Assignments will include outside reading material as well as that provided in the lectures.

**Texts:** There is no formal text for this subject. Select readings will be assigned.

### **Grading**

Homework:	10 @ 10 pts each	100 pts
Projects	3 at 50 pts each	150 pts
Attendance:	25 @ 2 pts each	50 pts
Presentation/Final Project:		100 pts
Total points		400 pts

400-368 pts	=	A
367-360	=	A-
359-348	=	B+
347-328	=	B
327-320	=	B-
319-312	=	C+
311-288	=	C
287-280	=	C-
279-268	=	D+
267-248	=	D
247-240	=	D-
<240	=	E

**Class participation is expected.**

### **Grades and Grade Points**

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.

### **Attendance and Make-Up Work**

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

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

### **Online Course Evaluation Process**

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. 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://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **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."* The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the UF Conduct Code website for more information. If you have any questions or concerns, please consult with the instructor or TAs in this class.

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: (New Link: <https://policy.ufl.edu/regulation/4-040/>)

### **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.

### **Accommodations for Students with Disabilities** such as:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the “[Get Started With the DRC](#)” webpage on the Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### **Campus Helping Resources**

Students experiencing crises or personal problems that interfere with their general well-being 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.

### **Whole Gator App**

The Whole Gator and website and app connects UF students with resources dedicated to supporting overall health and well-being. In addition to many of the resources below it also has strategies to practice self-care. <https://one.ufl.edu/whole-gator/topics>

### Health and Wellness

- U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non- crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

- University Police Department: [Visit UF Police Department website](#) or call 352- 392-1111 (or 9-1-1 for emergencies).

- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273- 4450.
- Student Success Initiative, <http://studentsuccess.ufl.edu>.

#### Academic Resources

- E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392- 4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).
- [Career Connections Center](#): Reitz Union Suite 1300, 352-392- 1601. Career assistance and counseling services.
- [Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email [ask@ufl.libanswers.com](mailto:ask@ufl.libanswers.com) for more information.
- [Teaching Center](#): 1317 Turlington Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
- [Writing Studio](#): Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; [Visit the Complaint Portal webpage for more information](#).
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): [View the Student Complaint Procedure webpage for more information](#).

#### Student Complaints:

- Residential Course: <https://www.ombuds.ufl.edu/complaint-portal/>
- Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint>

#### Additional information

Instructors may choose to clarify in their syllabus their teaching philosophy, expectations for classroom behavior, utilization of e-learning, and other information that will help students succeed in the course.