

AOM 4461
Sustainable Agricultural Systems
Agricultural Operations Management
The University of Florida

Spring 2022 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
Assistant Professor
Rogers Hall, Rm 263, 352-294-6702
Office hours: Open door and 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. Credit: 3 hours

Pre-requisites/Co-requisites:

Senior standing and 1st year physics.

Course Objectives

Students will be able to calculate efficient operational plans for agricultural and natural resources facilities. Topics that students will analyze include:

- Agricultural machinery
- Lighting
- Ventilation systems
- Electric motors
- Internal combustion engines (stationary and non-stationary)
- Pumps
- Refrigeration systems
- Building systems and technology

Students will learn to analyze efficient operation and couple the results with economic analyses to reduce fixed costs. Reduction of fixed costs will be shown to increase profitability and sustainability.

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.

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. Exams 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

Tests:	2 @ 50 pts each	100 pts
Homework:	10 @ 10 pts each	100 pts
Projects	3 at 50 pts each	150 pts
Attendance:	25 @ 4 pts each	100 pts
Presentation/Final Project:		100 pts
Total points		550 pts

UF grading policy can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

550-517 pts	=	A
516-495	=	A-
494-481	=	B+
480-453	=	B
452-440	=	B-
439-426	=	C+
425-398	=	C
397-382	=	C-
381-371	=	D+
370-343	=	D
342-327	=	D-
<326	=	E

Homework will be due on or before the date assigned in class. Late work will not be accepted without prior approval. A penalty of 10% per class period will be assessed for late assignments without approval. **Class participation is expected.**

General Requirements

1. Many assignments, whether homework or projects, will be due on a given date. Late assignments will lose points in grade for each day late. Missed exams may be rescheduled only with proper documented excuses within one week of the original date given.
2. There is no cumulative final exam. The last exam is given in the last class of the semester.

Covid-19 Class Issues

1. One section of this class will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.
 - You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
 - This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
 - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
 - Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
 - If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms](#).
 - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. [Find more information in the university attendance policies](#).
2. For online course with recorded materials a statement informing students of privacy related issues such as:

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.

Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

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."*

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: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

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.

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, www.dso.ufl.edu/drc/

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.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*
 - 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, www.crc.ufl.edu/*

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