

**AEC 6229 (3 credits)**  
**Laboratory Instruction: Theory and Practice**  
Spring 2023  
Sections 10NL/LIOC



AGRICULTURAL  
EDUCATION AND  
COMMUNICATION

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**Instructor**

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**Office Hours:** By appointment (email to schedule)

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**Time and Location**

Thursday: Periods 6 – 8 (12:50 – 3:50 pm) Rolfs Hall 409 or designated time & location (see schedule)

**Course Description**

This course will focus on theoretical and practical approaches to teaching agriscience in laboratory settings. Research and theoretical foundations that underline the aspects of planning, management, teaching, evaluation, safety, and facility design will be discussed within the context of agriscience laboratory instruction.

**Course Objectives**

At the completion of the course, the learner will be able to:

- 1) Connect theoretical designs and empirical evidence guiding laboratory-based teaching and learning processes.
- 2) Establish instructional goals and define the nature of agriscience laboratory teaching.
- 3) Examine key learning constructs as they pertain to learning in agriscience laboratory settings.
- 4) Plan and deliver effective agriscience laboratory instruction.
- 5) Develop and implement an agriscience laboratory safety instructional program.
- 6) Establish strategies for effective management and supervision of student performance in the agriscience laboratory.
- 7) Integrate research on teacher effectiveness into the planning, teaching, and management aspects of agriscience laboratory teaching.
- 8) Evaluate agriscience laboratory facilities and develop plans for facility improvement and expansion.
- 9) Design strategies for effectively teaching agriscience in informal settings.

**Readings** (Available at the provided links) – any additional will be shared weekly.

- 1) Visit this link <http://nap.edu/9596> to download a free PDF of *Inquiry and the National Science Education Standards*
- 2) What is Inquiry-based Instruction - <https://edis.ifas.ufl.edu/pdffiles/WC/WC07500.pdf>
- 3) Evaluating Learning in Laboratory Settings – <https://edis.ifas.ufl.edu/pdffiles/WC/WC06000.pdf>
- 4) Teachers' Use of Agricultural Laboratories in Secondary Agricultural Education - <http://www.jae-online.org/attachments/article/1675/53.2.124%20Shoulders.pdf>
- 5) Effects of Inquiry-based Agriscience Instruction on Student Achievement - <http://www.jae-online.org/attachments/article/1589/52.4.175%20Thoron.pdf>
- 6) Effects of Inquiry-based Agriscience Instruction on Student Scientific Reasoning - <http://www.jae-online.org/attachments/article/1705/53.4.156%20Thoron.pdf>

- 7) Effects of Inquiry-based Agriscience Instruction and Subject Matter-based Instruction on Student Argumentation Skills - <http://www.jae-online.org/attachments/article/1670/53.2.58%20Thoron.pdf>
- 8) Students' Perceptions of Agriscience when Taught Through Inquiry-Based Instruction - [http://www.jae-online.org/attachments/article/1801/2013-0778\\_thorona.pdf](http://www.jae-online.org/attachments/article/1801/2013-0778_thorona.pdf)
- 9) Constructivism: The Career and Technical Education Perspective - <https://files.eric.ed.gov/fulltext/EJ598590.pdf>
- 10) A Philosophical Examination of Experiential Learning Theory for Agricultural Educators - [http://www.jae-online.org/attachments/article/243/Roberts\\_Vol47\\_1\\_17-29.pdf](http://www.jae-online.org/attachments/article/243/Roberts_Vol47_1_17-29.pdf)

### **Course Website**

This course will use the UF eLearning platform (Canvas)

## **DESCRIPTION OF COURSE ASSIGNMENTS**

### **Participation/Weekly Assignments** [Objectives 1, 3, and 7]

Each week you will bring a resource/reference to discussion at the opening of class that pertains to the topic of the week, starting with the second week of class. All students should be prepared to share insights from their source and add to the overall discussion, no written summary will be required. Additionally, other in-class activities will occur periodically which will also be included as participation credit. [Objectives 1, 3, and 7]

### **Classroom Inquiry Vignettes** [Objectives 1 and 3]

Read the classroom vignettes included in Chapter 3 "Images of Inquiry in K-12 Classroom" of *Inquiry and the National Science Education Standards* available as a free PDF download on-line at this link <http://nap.edu/9596>. Write a 2-3 page reflection and identify how to apply the principles and ideas of these vignettes in the School-Based Agricultural Education Classroom or other educational setting.

### **Agriscience Written Lesson Plan** [Objectives 2, 4, 7 and 9]

Prepare a unit of agricultural lesson plans that will require approximately 3-5 hours of instruction appropriate to be used in a middle school or secondary school agriscience education program based upon the content included in this course. These lessons must include laboratory instruction. At a minimum, the lesson plans should include the following:

- Describe the audience and/or situation for which instruction will be provided (i.e., middle school students, 10th graders, Agriscience Foundations, etc.)
- List the objectives, questions, or competencies that will guide the learning process
- Connect to Sunshine State Standards (SSS) and Student Performance Standards (SPS)
- Describe the interest approaches used
- Outline the subject matter to be taught as a daily format and include transitions from day to day as you move through the content of the Unit
- Describe the teaching techniques that will be used
- Describe the learning environment in which the activities will be conducted (i.e., classroom, land laboratory, ag mechanics laboratory, etc.)
- List all references and/or instructional materials that will be used
- Describe the application/evaluation procedures that will be used (include any device[s] and/or grading key[s])
- Include teaching materials (visual aids, handouts, presentations, etc.)
- Modifications that can be made for students with disabilities

*A template will be provided for use, but you can use any format you are already comfortable with for the layout of this assignment, just make sure these bulleted components are present.*

### **Lab-Based Instructional Moment** [Objectives 2, 4, and 7]

During the designated week on the course schedule, you will choose a 30-minute segment from your lesson plan assignment to deliver in front of your peers. This segment should include interactive lab-based instruction where you can demonstrate effective teaching as discussed earlier in the course.

## **Agriscience Facility Plan**

### Part One [Objective 8]

- a. Conduct a comprehensive evaluation of your assigned educational laboratory facility
- b. Submit a brief report explaining how this facility could be better utilized to address teaching agriscience content

### Part Two [Objectives 7, 8, and 9]

- a. Design an indoor &/or outdoor "ideal" laboratory facility
- b. Indicate the subject areas the facility is designed to accommodate
- c. This is a "perfect world" and therefore money is no object for this design
- d. Your laboratory site should contain at least 10 different components
- e. Include a drawing/diagram of the area
- f. Complete a written narrative describing each component in your design and suggestions of activities that could be conducted using each component. Include connections to theoretical foundations for laboratory instruction.

### Part Three [Objectives 5 and 6]

Using your design from Part Two create a safety and management plan, including,

- a. General safety protocols for all lab spaces
- b. Specific detailed safety procedures for one area of your design layout (may be useful to establish a safety incident scenario when creating these procedures)
- c. Laboratory management philosophy statement establishing your student management plan and how you believe these strategies will effectively help you supervise student performance

<b>Assignment</b>	<b>Percentage</b>	<b>Due Dates</b>
Participation/ Weekly Assignments	50	Weekly – See Schedule
Classroom Inquiry Vignettes	100	February 16 <sup>th</sup>
Agriscience Written Lesson Plan	150	March 2 <sup>nd</sup>
Lab-based Instructional Moment	150	March 23 <sup>rd</sup>
Agriscience Facility Plan Part 1	100	Draft- April 20 <sup>th</sup> / Final- April 28 <sup>th</sup>
Agriscience Facility Plan Part 2	150	Draft- April 13 <sup>th</sup> / Final- April 28 <sup>th</sup>
Agriscience Facility Plan Part 3	100	Draft- April 20 <sup>th</sup> / Final- April 28 <sup>th</sup>
<p><b>Late Assignments and Make-Up Work:</b> There will be no late assignments allowed that are unexcused. All assignments are due by the date listed in the syllabus and course outline. Following an excused absence, students may turn in late work without penalty within 3 business days of the absence. For non-university excused absences, late work will be accepted up to 1 week past the due date and will be penalized 10% per day.</p> <p>Students requesting classroom accommodations 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 accommodations.</p> <p>Make-up work should be arranged prior to the expected absence. In case of emergencies, arrangements for completing assignments should be made upon return to class.</p>		

<b>Grading Scale</b>				
A = 752 - 800	B+ = 696 - 719	C+ = 616 - 639	D+ = 536 - 559	E = 0 - 479
A- = 720 - 751	B = 672 - 695	C = 592 - 615	D = 512 - 535	
	B- = 640 - 671	C- = 560 - 591	D- = 480 - 511	
University of Florida Grading Policy: <a href="https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx">https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx</a>				

### **Attendance and Assignments**

Students are expected to be in class each week prepared to discuss the designated topic. If students miss more than 2 class sessions it will result in an automatic 10% reduction of the final course grade. Requirements for class attendance and make-up assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

### **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.

### **Campus Helping Resources**

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, [www.counseling.ufl.edu](http://www.counseling.ufl.edu)
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- Career Connections Center, First Floor JWRU, 392-1601, <https://career.ufl.edu/>
- Student Success Initiative, <http://studentsuccess.ufl.edu>
- Student Complaints:
  - Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/>
  - Online Course: <https://distance.ufl.edu/state-authorization-status/#student-complaint>

### **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.

Location: 0001 Reid Hall, 392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### **Online Learning:**

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/UGRD/academic-regulations/grades-grading-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/>

## ***Tentative AEC 6229 Course Calendar***

Date	Session Topics	Items Due
January 12	What is laboratory-based instruction?	
January 19	Purpose of lab-based instruction	Weekly Resource/Reference starts
January 26	Theoretical foundations	
February 2	Inquiry/problem-based instruction	
February 9	Planning for lab-based instruction	
February 16	Effective teaching in informal settings	Classroom Inquiry Vignettes
February 23	"Recharge week" prepare your Agriscience Lesson Plans and Teaching Moment	
March 2	Evaluating students within lab-based instruction	Agriscience Lesson Plans
March 9	Managing students within lab-based instruction	
March 16	No Classes – Spring Break	
March 23	Lab-based instruction teaching moments	Teaching Moment
March 30	Maintaining safe practices within lab instruction	
April 6	Facility design and layout	
April 13	Maintaining facility spaces	Facility Plan Part 2 Draft
April 20	Presentation of Facility Layouts (present drafts of all parts and receive feedback)	Facility Plan Part 1 & 3 Drafts
Finals Week	Final Draft of Agriscience Facility Plan all three parts (Due April 28 <sup>th</sup> )	