



**AEC 6229**  
**Lab Instruction Theory and Practice**  
Summer B 2019

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**Instructors:**

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**Time and Location**

100% online

**Course Description**

This course will focus on theoretical and practical approaches to teaching agriscience in laboratory settings. Research and theoretical foundations that underlie 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) The Effect of Vee Maps and Laboratory Reports on High- and Low-Order Content–Knowledge Achievement in Agriscience Education - <http://www.jae-online.org/attachments/article/1768/2013->

- [0725%20thoron.pdf](#)
- 6) Effects of Inquiry–based Agriscience Instruction on Student Achievement - <http://www.jae-online.org/attachments/article/1589/52.4.175%20Thoron.pdf>
  - 7) Effects of Inquiry–based Agriscience Instruction on Student Scientific Reasoning - <http://www.jae-online.org/attachments/article/1705/53.4.156%20Thoron.pdf>
  - 8) 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>
  - 9) 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)
  - 10) Constructivism: The Career and Technical Education Perspective - <https://files.eric.ed.gov/fulltext/EJ598590.pdf>
  - 11) 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 ASSIGNMENTS**

### **Participation/Weekly Assignments**

Even though this course is being taught via distance, you are expected to be an active participant in the class web-discussions and exercises. Failure to be engaged in the sharing of ideas not only limits the value you gain from this course, but also that of the other individuals in the course. Throughout this course a discussion topic will be posted on the discussion board. Students are required to contribute to each of these discussions by posting their own thoughts and opinions. Discussion posts will be graded on both quantity and quality.

### **Agriscience Written Lesson Plan**

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
- 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

### **Agriscience Facility Plan**

#### **Part One**

- a. Conduct a comprehensive evaluation of your educational laboratory facility.

- b. Submit a brief report explaining how this facility could be better utilized to address teaching agriscience content.

**Part Two**

- 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.

**Classroom Inquiry Vignettes**

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.

**Tentative Course Outline**

Class Date	Class Meeting Outline	Readings	Activities/Assignments
Week 1 July 1 – 7	Defining Laboratories & Goals of Laboratory Instruction	#4	Weekly discussion
Week 2 July 8 – 14	Constructivism & Experiential Learning	#10 & 11	Weekly discussion Written Lesson Plan
Week 3 July 15 – 21	Inquiry-based Instruction	#2, 6, 7, 8, & 9 & handouts	Weekly discussion Facility Plan Part One
Week 4 July 22 – 28	Managing Student Learning in the Laboratory		Weekly discussion
Week 5 July 29 – Aug. 4	Planning for and Evaluating Laboratory Instruction	#3, 5	Weekly discussion Facility Plan Part Two
Week 6 Aug. 5 – 11	Project Development	#1	Inquiry Paper

### Course Assignments and Grading

- **All assignments are due on or before 11:59pm (eastern time) on Sunday to end the week. Monday will begin each week.**
- **I ask that by Wednesday of each week you respond to the discussion question, by Friday you have read and commented on two other's postings. Please be thoughtful in your response – as they are graded.**

Assignment	Due Date	Points Possible	Points Awarded
Weekly Assignment/Discussion	Weekly (5)	50	
Written Lesson Plan	Week 2	100	
Facility Plan Part One	Week 3	100	
Facility Plan Part Two	Week 5	150	
Inquiry Vignette Paper	Week 6	100	

### Grading Scale

A = 475 - 500	A- = 450 - 474	B+ = 435 - 449	B = 415 - 434	B- = 400 - 414
C+ = 385 - 399	C = 365 - 384	C- = 350 - 364	D+ = 335 - 349	D = 315 - 334
D- = 300 - 314	E = 0 - 299			

### Grades and Grade Points

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

### Academic Honesty

In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

**The Honor 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.**

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office. (Source: Graduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor. This policy will be vigorously upheld at all times in this course.

### 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. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### **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 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/](http://www.counseling.ufl.edu/cwc/)

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

### **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.

0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)