

**AGR 4212: Alternative Cropping Systems**  
Spring 2020; 3 Credits

**Instructor:** Chris H. Wilson, PhD.

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**Office Hrs:** by appointment (before/after class is generally best)

**Course Description:**

The goal of this course is to confront growing challenges to agricultural systems within the viewpoint of agroecology. Our approach in this course has two-fold. First, we will develop the knowledge needed to holistically and rigorously evaluate cropping systems with respect to the triple bottom-line of production, environment and society. Second, we will apply what we have learned to real-world cropping systems, in order to identify the benefits and challenges of emerging alternative agricultural systems.

**Course Prerequisites:** PLS 3004C

**Course Format:**

The course combines traditional lectures and focused discussions with field trips to view application of course material in real-world settings. Additionally, students will develop a hands-on semester-long project at the Field and Fork teaching gardens. The class material will be available on Canvas and may include lectures, readings, discussions, virtual field trips, projects, case studies, websites, and videos. When changes must be made to the syllabus, including the course schedule and assignments, students will be notified in class and via Canvas or email.

**Selected Reading List:**

- Selections from The Ecology of Agroecosystems by J.H. Vandermeer (Jones and Bartlett 2011).
- Chapter 2 from Agroecology: The Ecology of Sustainable Food Systems by S.R. Gliessman (CRC 2015).
- Fuller, DQ et al. (2015). Comparing Pathways to Agriculture. *Archaeology International*, No. 18: p. 61–66, DOI: <http://dx.doi.org/10.5334/ai.1808>
- Jose, S and Dollinger J (2019). Silvopasture: a sustainable livestock production system. *Agroforestry Systems* 93:1-9. <https://doi.org/10.1007/s10457-019-00366-8>
- Peterson et al. (2018). Whatever happened to IPM? *American Entomologist*. <https://doi.org/10.1093/ae/tmy049>
- Glover et al. (2010). Increased Food and Ecosystem Security Via Perennial Grains. *Science* 328: 1638-1639. <https://doi.org/10.1126/science.1188761>

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**General Course Objectives:**

- Describe the elements that define agroecosystems including their social and biophysical aspects.
- Understand the origins of "conventional" agriculture
- Analyze synergies and tradeoffs among ecosystem services in agroecosystems.
- Evaluate emerging alternative agricultural systems with respect to both social and biophysical aspects.
- Apply agroecological methods and concepts to a hands-on field project.
- Develop effective communication on these topics through written and verbal reports, in both individual and group contexts.

**Course Modules\***

\*instructor reserves the right to modify module topics and order to accommodate course progress.

1. Course Introduction and Overview
2. Purpose, history, and intensification of agriculture
3. Energy, carbon and water budgets
4. Agroecosystem nutrient cycles and soil health
5. Plant diversity, structure, pest and disease regulation
6. Socioeconomic dimensions of agroecosystems
7. Agroecosystems and invasive species
8. Putting it together: ecosystem services and stewardship of agricultural systems
9. The problem of agriculture revisited
10. Alternative crop system evaluations
11. Alternative crop system proposals

**Field Trips and Site Visits:** The material in this course is very applied, and there is no substitute for seeing concepts and theories in action. Two to four trips to crop and/or livestock producers will be scheduled based on season, and producer availability. Online/distance students are required to complete at least two field trips or site visits, but may opt for a virtual assignment for the third. Site trips will be an indispensable component of completing agroecosystem evaluations.

**Communication:** Effective communication on everyone's part is important to success in this course. Please check your ufl and/or Canvas email regularly to catch any announcements or changes. Please email or stop by my office during posted office hours in order to discuss course material in great depth, or resolve any questions or concerns.

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**Course Grading Scale:**

A = 100-94%	C = 76.9-73
A- = 93.9-90	C- = 72.9-70
B+ = 89.9-87	D+ = 69.9-67
B = 86.9-83	D = 66.9-63
B- = 82.9-80	D- = 62.9-60
C+ = 79.9-77	E < 60

**Grade Distribution and Policies:**

Final grade points will be assigned according to current UF policies:  
<https://catalog.ufl.edu/ugrad/cur rent/regulations/info/grades.aspx>

All graded assignments will be posted at Canvas with due dates and descriptions. Grades of assignments is planned to be posted within 5 business days of submission.

**Grade point distributions:**

- Content module quizzes (4 at 25 points each) = 100 points
- 3 crop system “mini” evaluations (3 at 25 points each) = 75 points
- Crop system written report (135 points)
  - Proposal/outline (10 points)
  - Rough draft (25 points)
  - Final report (100 points)
- Crop system final presentation (50 points)
- Peer evaluation of final presentation/evaluations (4 at 5 points each = 20 pts)
- Attendance + discussion participation = 30 points

Total points: 410

**1) Content module quizzes**

Short knowledge checks will be posted at Canvas, mostly during the first half of the class as we progress through the content modules. The purpose of these quizzes is to monitor progress and ensure that everyone is developing the knowledge and tools needed to evaluate alternative crop systems and to develop their semester projects.

**2) Crop system mini evaluations**

During the semester, the class has the opportunity to read papers and to make site visits to various alternative crop and livestock systems centered in Florida. Each of these activities will turn into a mini evaluation, building on the content and tools developed over the semester. For these evaluations, you are required to use a mix of peer-reviewed and other reputable information sources. The format will be a written report plus a brief audio-visual component of your choice that complements the information in the written section. The AV component could consist of figures, graphs, videos, illustrations, interactive web-based content, etc.

**3) Alternative crop system evaluation and project implementation: written and presentation**

Using the concepts you learned from class and found via independent research, you will work in individually and in small groups to evaluate an alternative agricultural system. Your proposal must first detail the conventional agricultural management systems in the regional context that you are considering, and then tailor your alternative agricultural system to those specific factors.

Group sizes will be around 4. Each person will have individual responsibility for one section of report, and corresponding part of presentation, as well as shared responsibility for quality of the whole report and presentation. Additionally, students will collect data from a mini field-project located at the Field and Fork teaching gardens on campus.

The sections of the report are: 1) description of context of the alternative crop system. What problems are being addressed and why? What are both global and local issues involved? 2) Productivity, yield and management of alternative system. 3) Environmental benefits, costs and trade-offs of alternative system, including a plan to manage and monitor them, and 4) Social, economic and political implications of alternative system. How does this system contribute to farmer livelihood, farm worker livelihood, food security and nutrition?

Your report **must** include both text and visual components (e.g. graphs, figures). Grades will be based on concept application, use of course content and outside information, and coverage of points mentioned above, NOT artistic ability or web design skills, but creativity is very welcome!

Your final presentations will be done with your groups. Virtual students will be able to participate via video link software. The goal is to provide a concise and compelling presentation

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that outlines the elements addressed in the report. Individual students will be responsible for their own section, as well as for overall quality.

### 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 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>.

*Your instructor reserves the right to make changes to the course as needed and will notify you of any changes in as timely a manner as possible. Notification will be given through Canvas and your ufl email.*

### Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities

#### 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: 2011-2012 Undergraduate 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.

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

*University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,*

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/)

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