

ALS 4154/5155 – Global Agroecosystems

INSTRUCTORS

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OFFICE HOURS: By appointment

COURSE OFFERED: Every Fall Semester, only distance education for Fall 2020.

TIMES: Lectures and other materials corresponding to three 50-minute periods per week will be posted directly on canvas, using an asynchronous delivery approach. There will be a synchronous 1-h chat session held on Monday between 5:00 and 6:00 PM, every week or every other week.

CREDIT HOURS: 3

PREREQUISITES

ALS 4154: Introduction to Soils in the Environment (SWS 3022), Applied Field Crop Production (AGR 4214C), and Agricultural Ecology (ALS 3153), or equivalents, or approval by the instructors.

ALS 5155: Soil for Environmental Professionals (SWS 5050) or Introduction to Soils in the Environment (SWS 3022), Applied Field Crop Production (AGR 4214C), and Agricultural Ecology (ALS 3153), or equivalents, or approval by the instructors.

COURSE DESCRIPTION

This course focuses on the principles of agroecology and presentation of topics that integrate ecological with agricultural principles to optimize resource conservation, productivity, societal benefit, and profitability.

COURSE OVERVIEW

There is a need for students to be trained broadly in agriculture, including agriculture's role in ecology as farming systems become more complex. This context is found in the "triple bottom line" of economics, environment, and society that complement production when evaluating the sustainability of farming systems. This course will emphasize a greater understanding of this triple bottom line in agricultural production in an ecosystem context, often termed agroecology. It will focus on the global trends of increasing population and land-use pressure; diminishing soil, water, nutrient, and energy resources; concern over the negative impacts of agricultural production on the environment; increasing awareness of the potential ecosystem service benefits from agriculture; and interactions with socio-economic concerns.

COURSE OBJECTIVES

The overall objectives of the course are to provide students with:

- 1) a thorough understanding of the complex interactions that occur in agroecosystems;
- 2) the ability to apply this knowledge to the design and management of sustainable agricultural production systems across the world.

STUDENT LEARNING OBJECTIVES

Following this course, students are expected to be able to:

1. Describe global agricultural production systems and their role in facing the challenge of global change.
2. Evaluate and discuss agricultural production issues from environmental, economic, and societal perspectives.
3. Analyze research literature dealing with the sustainability of agriculture.
4. Synthesize and apply the knowledge gained in this course to assess emerging agricultural production systems.
5. Use principles learned in this course to synthesize and evaluate a relevant and timely global issue in agroecology.

CLASS FORMAT

Lectures and other materials corresponding to three 50-minute periods per week will be delivered directly on canvas, one week in advance (typically on Friday). There will be a synchronous 1-h chat session held on Monday between 5:00 and 6:00 PM. There will be a biweekly online discussion session managed in Canvas, for a total of 8 discussions throughout the semester.

TEXTBOOK

None required. Readings will be assigned for each discussion in the course. The following references are useful resources for the course:

- Altieri, M.A. 1995. *Agroecology: The science of sustainable agriculture*, second edition. Westview Press, Boulder Colorado.
- Brym, Z.T. and J.R. Reeve. 2016. Agroecological Principles from a Bibliographic Analysis of the Term Agroecology. *Sustainable Agriculture Reviews*, 19: 203-231.
- Foley, J.A., et al. 2011. Solutions for a cultivated planet. *Nature*, 478: 337-342.
- Jackson, L.E. 1997. *Ecology in agriculture*. Academic Press, San Diego, CA.
- Scherr, S.J., and J.A. McNeely (eds.). 2007. *Farming with Nature: The Science and Practice of Ecoagriculture*. Island Press, Washington, DC.
- Seufert, V. and N. Ramankutty. 2017. Many shades of gray – The context-dependent performance of organic agriculture. *Science Advances*, 3:e1602638.
- Sinclair, T.R., and A. Weiss. 2010. *Principles of Ecology in Plant Production*, 2nd edition. CAB International. 186 pp.
- Sinclair, T.R. and C.J. Sinclair. 2010. *Bread, Beer and the Seeds of Change: Agriculture's Imprint on World History*. CAB International. 288 pp.

Vandermeer, J.H. 2010. The ecology of agroecosystems. Jones & Bartlett Learning, Sudbury, MA.
Wojtkowski, P.A. 2006. Introduction to agroecology: Principles and practices. Psychology Press, Binghamton, NY.

SPECIAL SOFTWARE: None required.

E-LEARNING

The entire course will be managed through e-learning using Canvas, and all materials and content will be available fully online, through Canvas. Canvas is the online source for the majority of your learning resources and assignments in this course. Students enrolled in the course should login to Canvas on the first day of the course at: <https://elearning.ufl.edu>. You will use your Gatorlink name and password to login to Canvas.

EVALUATION OF STUDENTS

The class is graded on a point scale, totaling **1000 points**, using three main assessment types:

- **Biweekly discussions on assigned readings.** Students will post a question for the class to discuss for all assigned scientific readings during the semester and post two original replies to other students' questions. Questions and replies should be between 50 and 150 words and encompass elements from the original paper or other sources from the literature. There will be a question to answer in the subsequent exam for each paper assigned. Each discussion is worth 20 points (10 points for questions, 5 points for each reply) x 8 discussions = **160 points total**.
 - ALS 4154 and ALS 5155 will be evaluated the same way for discussions.
- **Three exams.** Students will complete exams online through Canvas, and these will be open from Sunday 12:01 AM until Wednesday 11:59 PM. These exams are open book, but you have to provide your own work. Exams consist of short answers related to a case study evaluated with the scorecard, in addition to a few questions incorporating key concepts from assigned readings. Exams will be weighted as **150, 150, and 200 points = 500 points total**.
 - The format of the exam and case study will be identical for both sections, but the ALS 4154 exam will contain fewer questions to answer with the scorecard, fewer questions from the assigned readings, and expectations of breadth and depth in answers will be lower.
- **Major paper.** Students will write a paper focusing on a given system according to production, environment and socio-economic components. An outline will be due on Sept. 18 (40 pts), a first draft on Oct. 23 (125 pts), and a final version incorporating feedback will be due Dec. 9 (175 pts). Thus, the major paper will be worth **340 points total**.
 - The format of the major paper will be identical for both sections, but expectations will be lower for ALS 4154 in terms of length, expected number of references from the primary literature, and level of integration of the different components of agroecology. Students with a research component (M.S. thesis or Ph.D.) are encouraged to write a paper focusing on their study system, but to use this paper as an opportunity to investigate and develop complementary perspectives on their own work, using the agroecology framework.

TOPICAL OUTLINE: see posted topic schedule in Canvas.

GRADING

We will use the following grading scale for the course:

Points	Grade	Grade points
940 – 1000	A	4.0
900 – 939	A-	3.67
870 – 899	B+	3.33
830 – 869	B	3.0
800 – 829	B-	2.67
770 – 799	C+	2.33
730 – 769	C	2.0
700 – 729	C-	1.67
670 – 699	D+	1.33
630 – 669	D	1.0
600 – 629	D-	0.67
< 600	E	0

For information on current UF policies for assigning grade points, see:

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

ABSENCES 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/ugrad/current/regulations/info/attendance.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 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/honorcodes/honorcode.php>.

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
 - Training Programs
 - Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

STUDENT COMPLAINTS

Resident students: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>.

Distance students: <http://www.distance.ufl.edu/student-complaint-process>.