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**Agroecology – EVR 4272 Section 01, Ref Number 86903**

**Fall 2017**

**Instructor:** Dr. Krish Jayachandran, Soil Scientist/Soil Microbiologist, Agroecology Program, Earth & Environment Department, College of Arts and Sciences.

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**Office Hours:** AHC5 383, Mondays and Wednesdays 1.00 pm – 3.00 pm, Also available in ECS 137 (Environmental Microbiology Laboratory), ECS 161 (Plant and Soil Laboratory) and ECS 157 (Agroecology Laboratory)

**Learning Assistant:** Ms. Ariel Freidenreich, PhD Student, Soil/Plant interactions, Agroecology Program, Earth & Environment Department, College of Arts and Sciences

**Office Hours:** ECS 157, by appointment, e-mail: [afrei006@fiu.edu](mailto:afrei006@fiu.edu)

**Class Room:** Student Academic Success Center 352, MWF 12.00 – 12.50 pm, Experiential Learning on Fridays at the Organic Garden and SASC 352.

**Objectives:** Train students to compare agroecosystems and natural ecosystems systematically, and attempt to integrate knowledge of natural ecosystems into agricultural practice. Learn to link ecology, socioeconomics and culture to sustain agricultural production, farming communities, and environmental health. Provide opportunities for students to analyze on-farm and off-farm environmental impacts of various crop and dairy production practices.

**Course Description:** Apply ecological principles to modern farming systems to achieve goals of long-term food production without depleting Earth's resources. Explore on-farm and off-farm ecological implications of agricultural and livestock practices for crop biodiversity, riparian and wetland systems, agroforestry, soil fertility, and pasture. Agroecology deals with the application of ecological principles in agroecosystems such as enhance recycling of biomass and optimizing nutrient availability and balancing nutrient flow, securing favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity, minimizing losses due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover, species and genetic diversification of the agroecosystem in time and space, and enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services, addresses many of the shortcomings of conventional

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agriculture. We focus on the following questions: What is agroecology?, what are agroecosystems?, what is sustainability?, what are the agroecological principles that guide the development of sustainable agroecosystems, how do we measure sustainability in agroecosystems, and what are the best agroecological indicators of sustainability? Student research projects and oral presentations will give added opportunity to discuss many of these topics in depth. This is a Discipline-Specific global learning course that counts toward your graduation requirement.

**Justification:** There is a growing network of institutions and scientists across North America and around the world incorporating an agroecological approach. The new agroecology approach offers benefits in terms of environmental, economic, and social measures of sustainability of our agricultural systems. This course fills the need of bringing an ecological focus to the practice of agriculture and provides the opportunity to link a variety of other environmental, economic, urban, and social issues to those that arise out of humankind's ubiquitous need to produce food.

#### **Global Learning Course Outcomes:**

**Global Awareness** - Students will be able to demonstrate understanding and the awareness of the interrelationship of principles of agronomy, practices of farming, human food systems and natural systems; global human population growth and ecological foot print, human activities and technologies connected with food systems, their various environmental impacts, and the economic and social factors that favor the use of one technology over another.

**Global Perspective** - Students will be able to articulate the perspectives of multiple stakeholders involved in the complex local, regional, national and international agriculture/food system ecological sustainability issues and how those perspectives interact and influence policy decisions.

**Global Engagement** - Students will collaborate in groups to devise/propose solutions to local, global and intercultural problems related to principles and practices of ecological agriculture/food systems.

#### **Active Learning Strategies:**

Students will participate in a number of activities including:

- Class Discussions
- Discussion Groups
- Socratic Circles
- Class Debates
- Organic Garden Experiential and Experimental Learning
- Class Group Power Point presentations

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- Field Trip (highly recommended)
- Video Production (extra credit)

**Co-Curricular Activities:**

Students will be able to participate in various on and off-campus co-curricular activities, which are available at [www.agroecology.fiu.edu](http://www.agroecology.fiu.edu). Documented attendance of at least three of these activities and submission of a three-page summary of the activities (one page per activity) will count as extra credit in the course.

**Course Syllabus**

| <b>Week</b>    | <b>Topic</b>  |
|----------------|---|
| Week 1.        | Introduction to Agroecology   |
| Week 2.        | Plants and Environmental Factors – plants and soil                                  |
| Week 3.        | Plants and Environmental Factors – plants and water                                 |
| Week 4.        | Plants and Environmental Factors - abiotic  |
| Week 5.        | Plants and Environmental Factors – biotic   |
| <b>Exam I</b>  | <b>Wednesday, September 27</b>  |
| Week 6.        | Population Processes in Agriculture   |
| Week 7.        | Genetic Resources in Agroecosystems   |
| Week 8.        | Agroecosystem Diversity and Species Interactions                                    |
| Week 9.        | Perturbation, Succession, and Agroecosystem Management                              |
| Week 10.       | Interactions between Agroecosystems and Natural Ecosystems                          |
| <b>Exam II</b> | <b>Wednesday, November 1</b>  |
| Week 11.       | Indicators of Sustainability – Culture, Community, and Sustainability               |
| Week 12.       | Achieving Sustainability - From Sustainable Agriculture to Sustainable Food Systems |
| Week 13.       | Research Priorities in Natural Systems Agriculture and Agroecology                  |
| Week 14.       | Agroecological Approaches at the International Level                                |

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**Final Exam      Friday, December 09 9.45 am – 11.45 am**

**Text:**

Agroecology: The Ecology of Sustainable Food Systems 2007. Stephen R. Gliessman, Taylor & Francis Group, CRC Press, N.W. Corporate Blvd., Boca Raton, FL 33431  
ISBN 0-8493-2845-4

**Additional Material:**

Several reading articles addressing Agroecosystem Diversity, Crop-Community Species Interactions, Integrated Pest Management, Wild Genetic Resources, Integrated Farming and Benefits, Local Food Systems, and Community Engagement in Ecological Agriculture are posted in blackboard for students reading assignment and follow-up discussions in classroom.

**Internet Resources:**

This is a web assisted course. A course webpage will be maintained with Blackboard Learning. There will be syllabus, course materials, assignments, articles, videos, rubrics, and announcements posted on Blackboard.

To access this resource, go to <https://ecampus.fiu.edu/> and click on Blackboard under the Login menu. In the Blackboard Login window, enter your FIU MyAccounts User Name and Password. Select EVR 4272 or AGR 6255 - Section U1 – fall 2017. For help with Blackboard, click the Student menu on the ecampus website call the ITS Help Center at (305) 348-2284.

**Attendance:**

Everyone is expected to attend class and prepare for class in advance. Attendance is mandatory, and will be taken every class. If you miss class due to a valid, documented extenuating circumstance, it will not count as an absence. Examples of valid absences (excused absences) include: (a) family member serious illness or other emergency; (b) official academic/athletic event (e.g. field trip); or (c) recommendation from an MD. Missing more than **FOUR** classes will result in 5% loss of your final grade and missing more than **SIX** days will result in 10% loss of your final grade. Every additional absence will lower your class grade by 10 percentage points. **TEN** or more unexcused absences may result in an "F" for the semester.

If you arrive to the class more than 10 minutes late, you are required to sign in on the LATE ARRIVAL SIGN-IN SHEET. Please take instructors prior approval if you plan to leave early. If you leave the class early, you are required to sign in on the EARLY DEPARTURE SIGN-IN SHEET. There will be deduction in participation points for being repeatedly late to the class and for leaving the class early. Participation points will be awarded for attentiveness and positive contribution to class discussions. Conversely, points will be lost for unexcused absences, being late to the class, leaving the class at will, class disruptions, etc.

Late assignments will not be accepted except when due to the above - cited circumstances.

Method of instruction is traditional lectures, one or two guest lectures from experts, and student discussion on relevant theme articles. We will have experiential and experimental learning

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activities through designed practical study at the Organic Garden and field trips on Fridays. The field trip days will be finalized in first two weeks of the classes.

### **Academic misconduct:**

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

### **Course behavior:**

Students will arrive on time, ready to participate in the day's activities and remain until the end of class. Refrain from private conversations during the class. Although potential for beneficial use of technology in education is immense, based on my experience in the class during previous semesters, I found that laptop computer/tablet usage by students was mostly disrupting the class; use of laptops and tablets is not allowed during the class. Students are not allowed to use their cellphones in class. They must be put away and set on vibrate mode. Students violating this policy will be asked to leave the class. Any violations of the university honor code (available at <http://www2.fiu.edu/~daiglerr/code.htm>) will result in charges of academic misconduct. This includes any form of cheating such as use of unauthorized materials or communication during exams, plagiarism and so on. Students will behave in a respectful manner toward one another even during heated debates, regardless of how strongly you disagree. Students showing a lack of courtesy and consideration for the Instructor and other students will be asked to leave the classroom and will be marked absent for the session.

### **Honor Code:**

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook. Cheating and plagiarism are violations of the academic honesty section of the FIU student code of conduct and will be reported to Judicial Services. Plagiarism is a serious offence will not be taken lightly. Plagiarism can be intentional (copying another student's work, collaborating too closely with another student) or unintentional (not citing all references, collaborating too closely with another student.) The best ways to avoid unintentional plagiarism are to reference all outside information, and to do all work on your own. If you have any questions about what is plagiarism, please ask the instructor. Instructors may use plagiarism detection software (such as turnitin.com) to determine if plagiarism has taken place. Suspected acts of

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plagiarism may be investigated and taken to the FIU Grievance Committee. Plagiarism will result in you receiving a 0 grade for your assignment (no exceptions) and may also result in your suspension or expulsion from the University.

**Sexual Harassment Policy:**

FIU's sexual harassment policy is available at:  
[http://hr.fiu.edu/index.php?name=sexual\\_harassment](http://hr.fiu.edu/index.php?name=sexual_harassment)

**Office of Disability Services for Students:**

If you have a disability and need assistance, please notify me and also contact the Office of Disability Services for Students (University Park - GC 190; Ph. 348-3532). Upon contact, the Office of Disability Services for Students will review your request and contact your professors or other appropriate personnel to make arrangements for appropriate modification and/or assistance.

Please ask questions in class as this will greatly add to the discussion and learning process and let me or Ariel know at any time throughout the term how we can be of help.

**Assignments and Exams:**

|   |     |
|---|-----|
| Exam I short essay format               | 25% |
| Exam II short essay format              | 25% |
| Final Exam                              | 25% |
| Class Participation, assignments, quiz  | 10% |
| Each Absence/Sleep/Talk                 | -1% |
| Experiential Learning Activities Report | 15% |

**Final Exam December 09, Friday 9.45 am - 11.45 am in SASC 352**

**Final Grades:**

93 - 100 = A, 89 - 92 = A-, 86 - 88 = B+, 83 - 85 = B, 79 - 82 = B-, 76 - 78 = C+, 73 - 70 = C, 58 - 69 = D, <59 = F

**Note:**

This syllabus and course schedule may be updated, if needed. An announcement of changes will be made in class and in Blackboard Learning class web.