TOPICS IN AGROECOLOGY 11:015:440

Room 138A Foran Hall - Monday 5:30 PM to 8:30 PM

Course Overview and Objectives
This course is designed to introduce various topics of Agroecology including traditional and organic farming, plant and animal production, energy, pest management, specialized and controlled environment agriculture and sustainable practices. The class size is small so we will try and have an interactive class environment. All opinions are welcomed and you are encouraged share your views and ideas with the class.

What is Agroecology?
The science of Agroecology, is defined as the application of ecological concepts and principles to the design and management of sustainable agro ecosystems, provides a methodological framework to tackle this task. The central idea of Agroecology is to develop agro ecosystems with minimal dependence on external inputs, emphasizing complex agricultural systems in which ecological interactions and synergisms between biological components provide the mechanisms for the systems to sponsor their own soil fertility, productivity and crop protection. By assembling a functional level of biodiversity (i.e. a collection of interacting beneficial organisms that play key functions within the farm) it is possible to initiate synergisms which subsidize farm processes by providing ecological services such as the activation of soil biology, the recycling of nutrients, the enhancement of beneficial arthropods and antagonists and so on, all important in determining the sustainability of agro ecosystems.

Miguel Altieri - UC Berkley

Student Learning Outcomes for Topics in Agroecology:
1-Be able to conduct a student discussion on the topics presented using information from the readings, education, and personal experience.
2-Start to recognize one’s own values in regards to food production, trade and consumption and learn how to display those values in one’s consumption habits.
3-Be able to defend one’s values using information learned in this class and/or previous experience.
4-Learn more about Agroecology and the problems the world is facing and will encounter in the future in regards to food production, trade, and consumption.
5-Develop a definition for sustainability as it relates to agriculture.
Context:

"The word agriculture, after all, does not mean "Agriscience," much less "agribusiness." It means "cultivation of land." And cultivation is at the root of the sense both of culture and of cult. The ideas of tillage and worship are thus joined in culture. And these words all come from an Indo-European root meaning both "to revolve" and "to dwell." to live, to survive on the earth, to care for the soil, and to worship, all are bound at the root to the idea of a cycle. It is only by understanding the cultural complexity and largeness of the concept of agriculture that we can see...Wendell Berry, The Unsettling of America: Culture and Agriculture (1977)

Course Grading:

Attendance 20% Attendance to class is crucial to success in this course. Topics and readings will be discussed during lecture.

Participation 20% Discussion is an important part of this course. Readings will help the class introduce the class to topics and talk about their ideas and view about issues in Agroecology.

Presentations 40% Students will divide up into teams and develop a class project, I will ask you to identify your teams by September 24, presentations the last two class meetings, November 18 and 25.

Critical Paper: 20% Students are required to write a report about various aspects of Agroecology, the paper should be eight pages in length plus references, double spaced 10 point type. The paper is due the last day of class, November 25.

Academic Integrity:

Rutgers Academic Integrity guidelines can be found at www.academicintegrity.rutgers.edu and will be adhered to in the class. Note that in all presentations, the source of the material presented must be cited explicitly on the first slide.

Academic Integrity Policy at Rutgers University requires every student to:

• properly acknowledge and cite all use of the ideas, results, or words of others.
• properly acknowledge all contributors to a given piece of work.
• make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of unsanctioned materials or unsanctioned collaboration.
• obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
• treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
• uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to insure that:

• everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
• all student work is fairly evaluated and no student has an inappropriate advantage over others.
• the academic and ethical development of all students is fostered.
• the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Lectures Lectures are composed of 3 hour sessions in which topics will be introduced and discussed. Readings related to next lecture topic will be emailed prior to class so that we may discuss the topic in question. Usually the first part of the class will be an outside speaker, Dr. Robson will lead facilitate the second half but the students will lead the discussion for the particular topic for that evening.

Readings It is important to review read the assigned readings before class. The readings are pertinent to topics in the course and will aid in the dialogue of these topics during discussion.
Critical Paper
Your paper will be eight pages double spaced plus references. The paper is due November 25. You may select a topic or chose one from the list below:

* The role of agriculture in the economic development of a region or country and its role in the conservation of natural resources.
* The impact of economic globalization on agricultural sustainability.
* The emergence and impact of rural social movements.
* The importance of incentives and support programs for farmers to create economic opportunities for the conversion to more environmentally sound agriculture.
* The potential of biotechnology in the development and structuring of agriculture, the restructuring of the global market, possible effects on environmental quality, etc.
* Comparisons of organic and conventional agriculture and ways of moving organic agriculture beyond an input substitution model.
* Climate change and agriculture.
* Labor issues and alternative markets in sustainable agriculture.
* Policies conducive to a more sustainable agriculture, etc.

Class Schedule and Readings: (Click here for Reading List)

September 9  Monday
Dr. Mark Robson
Review of syllabus, course expectations, and group assignment
Intro to Agroecology
Readings: AGECOLSEP9-1, -2, -3, -4
Websites: http://www.sarep.ucdavis.edu/sarep/about/def http://sustainableagriculture.net/

September 16 Monday
Dr. Robson and Dr. Marjorie Kaplan
Global Agroecology
Climate change and Agriculture
DVD:  Silent Spring
Readings: AGECOLSEP16-1, -2, -3

September 23 Monday
Dr. Robson and Ms. Pamela Frank
Solar Options in Agriculture
Combining Solar Photovoltaic Panels and Food Crops for Optimizing Land Use
Readings: AGECOLSEP23-1, -2

September 30 Monday
Dr. Robson and Dr. Dan Cariveau
Non-Apis Pollinators and Pollination Ecology
Readings: AGROECOLSEP30-1, -2, -3
October 5  Saturday  
NYC field trip  
12:00 Riverpark Farm  [http://www.riverparkfarm.com/Riverparkfarm/farm.htm](http://www.riverparkfarm.com/Riverparkfarm/farm.htm)  
1:30  NYC Green Market Union Square  [http://www.grownyc.org/unionsquaregreenmarket](http://www.grownyc.org/unionsquaregreenmarket)

October 7  Monday  
Dr. Robson and Father Fletcher Harper  
Faith Basis of Sustainability  
DVD:  [Food, Inc.](http://www.foodinnovation.rutgers.edu/)  
Readings:  AGECOLOCT7-1, -2, -3  
[http://deepblue.lib.umich.edu/bitstream/handle/2027.42/58610/1107-Hoffman.pdf?sequence=1](http://deepblue.lib.umich.edu/bitstream/handle/2027.42/58610/1107-Hoffman.pdf?sequence=1)

October 12  Saturday  
Field trip to Natirar  
9:00 AM at Natirar in Somerset County  [http://www.natirar.com/](http://www.natirar.com/)

October 14  Monday  
Dr. Robson and Dr. Margaret Brennan  
Innovation and Technology for NJ Agriculture  
Case Study: The Rutgers Food Innovation Center  
Readings:  AGECOLOCT14-1  
Websites:  [http://foodinnovation.rutgers.edu/](http://foodinnovation.rutgers.edu/)  
[http://www.icic.org/connection/blog-entry/kitchen-incubators](http://www.icic.org/connection/blog-entry/kitchen-incubators)

October 21  Monday  
Work in groups for your project

October 28  Monday  
Dr. Robson and Dr. Xenia Morin  
CSA and Food Systems; Biotech Plants and Animals  
DVD:  [Bad Seed](http://www.foodinnovation.rutgers.edu/)  
Readings:  AGECOLOCT28-1, 2, -3, -4, -5, -6  
Websites:  [http://www.localharvest.org/csa/](http://www.localharvest.org/csa/)  
[http://www.foodbanknyc.org/our-programs/direct-services/community-supported-agriculture](http://www.foodbanknyc.org/our-programs/direct-services/community-supported-agriculture)  
November 4    Monday
Work in groups for your project

November 11   Monday
Dr. Robson and Professor Jack Rabin
Sustainable and Organic Agriculture and Marketing
Readings: AGECOLNOV11-1, -2, -3, -4, -5
Websites: http://www.epa.gov/agriculture/torg.html
          http://extension.agron.iastate.edu/organicag/whatis.html
          http://www.csrees.usda.gov/organicagriculture.cfm

November 18  Monday
Student Presentations – First Session

November 25  Monday
Student Presentations – Second Session
Critical Individual Papers due
Class Group Project

1) Divide up into groups of three or four people
2) Select a commodity (crop), these are examples, you can choose others.
   a. Coffee
   b. Cotton
   c. Corn
   d. Chocolate
   e. Wine grapes
   f. Wheat
   g. Soy
   h. Peanuts
   i. Potatoes
   j. Bananas
   k. Rice

3) Then look at the following questions:
   a. History and origin of this crop?
   b. Where is it grown?
   c. Why do we pay as much or as little as we do for this crop?
   d. Is this a sustainable crop (you need to define sustainable for this purpose)?
   e. What are the sustainable practices used (is they are used for this crop)?

4) What are the pests: insects, weeds, and diseases for this crop?
5) What strategies can/do famers take to control pests? GMO, IPM,
6) How is this crop marketed and transported?
7) Is it refined or mainly used as it comes out of the field?
8) Is this a crop that is usually sold as organic, non-organic, both?
9) Is this a crop that is a local crop or non-local (exported globally)?
10) Go to the store(s) and look at the prices, do the prices reflect the production costs?

Each group will be responsible for a 15 minute PowerPoint and then some Q&A from the class. The PowerPoint will be turned in as part of the assignment.

Prior to that date you will be given time in class to meet in your groups to go over the project, discuss the progress, assign roles for working on this, etc.

The assignments are due on the last two meetings of class: November 18 and 25. Any time you have any questions please see me and we can discuss in person (schedule with Mrs. Yudin) on the phone (908-239-4923) or through e-mail robson@aesop.rutgers.edu
Mark Gregory Robson, BS, MS, PhD, MPH, DrPH, ATS

Dr. Mark Gregory Robson is the Dean of Agricultural and Urban Programs and Professor of Entomology at Rutgers University-School of Environmental and Biological Sciences and Professor of Environmental and Occupational Health the University of Medicine and Dentistry of New Jersey School of Public Health—School of Public Health. Dr. Robson graduated with a B.S. with High Honors (1977) from Rutgers University - Cook College in Agricultural Science and an M.S. (1979) and Ph.D. (1988) from Rutgers University - Graduate School New Brunswick in Plant Science. He has an M.P.H. (1995) from the University of Medicine and Dentistry of New Jersey - School of Public Health in Environmental and Occupational Health. Dr. Robson also has an Honorary Doctoral Degree in Public Health (DrPH) from Chulalongkorn University (2010). He was elected a Fellow in the Academy of Toxicological Sciences in 2002 and in 2012 he was elected a Fellow of the American Association for the Advancement of Science (AAAS).

Dr. Robson’s research focus is on exposures to pesticides and agricultural chemicals. Dr. Robson is currently the PI on an NIH-funded Fogarty ITREOH Center in Bangkok Thailand and was the PI on a Robert Wood Johnson Foundation Grant on Tsunami Long Term Relief Efforts. He currently serves or has served on many international, national and state committees on environmental health. From 2003 to 2010 he was the Chair of the New Jersey Drinking Water Quality Institute.

Dr. Robson is a contributing editor for Public Health Reports, and he is on the editorial boards for the International Journal of Occupational and Environmental Health, the Journal of Environmental Health, and New Solutions, a Journal of Environmental and Occupational Health Policy, Chulalongkorn Journal of Health Research and the Journal of Human and Ecological Risk Assessment. Dr. Robson and Dr. William Toscano are the editors of the textbook Environmental Health Risk Assessment for Public Health (Jossey Bass 2007).

Dr. Robson is a member of the Rutgers Graduate Programs in Toxicology, Environmental Science, Entomology, Ecology, and Plant Biology. He is also a member of the GSE graduate faculty and the Planning faculty at the Bloustein School. He is a Visiting Professor and Senior Academic Advisor at Chulalongkorn University in Bangkok, Thailand and at Prince of Songkla University in Hat Yai, Thailand. Dr. Robson was named a Fulbright Senior Specialist for Thailand in 2005. Dr. Robson has won numerous awards including UMDNJ Master Educator 2001, School of Public Health Student Association Excellence in Teaching Award 2001 and 2006, and Foundation of UMDNJ Excellence Award for Teaching 2002. He was the recipient of the American Water Works Association - Research and Education Award in 2005 and the George Hammell Cook Distinguished Alumni Award, Rutgers University in 2005 and the Distinguished Alumni Award for the Graduate School New Brunswick in 2009. He was named to the ASPH/Pfizer Public Health Academy of Distinguished Teachers 2007. In 2009 he won the Pfizer Excellence in Teaching Award for Public Health and in 2010 he received the Foundation of UMDNJ Excellence Award for Research. In 2011 he was named the Mehlem Award recipient from the International Society of Exposure Assessment. In 2012 he was the recipient of the SEBS Teaching Excellence Award and the Graduate School Teaching Excellence Award. In 2013 he was the recipient of the APLU Malone Award for Academic Leadership for International Programs.

September 2013