Title: "Food, Trees and Culture—Indigenous Sustainable Agroforestry Systems"
Draft Syllabus Winter 2018
Instructor: Jean B. Faye
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Course Description and Purpose:
The purpose of this course is to make students of environmental studies, food studies and other natural resources disciplines familiar with the major types of sustainable agroforestry systems used by people in both developed and developing countries and inform them about the ecological benefits they provide to humans, plants, animals, and to the environment. This course aims to educate students interested in the interaction of biophysical, social, political and economic issues underlying the adoption and application of world agroforestry systems. The lectures emphasize the basic components and concepts of cognate subjects of agroforestry and human-environment relations. Assigned readings add training in analyzing complex social and ecological systems and specific applications such as nut-tree crop combinations, forest farming, carbon farming, and concepts of climate change adaption.

This course can contribute to the **Natural and Social Sciences** components of the **UO core requirements**. It focuses on the interplay between the science of sustainable agriculture (or agroecology), forestry, environmental issues, and livestock husbandry with the social and economic aspects of communities to improve agri-cultural production while protecting the environment. Critical thinking is encouraged through class-discussions, assigned readings and writing Rhetorical Précis, midterm examination questions, and writing a final research-based term paper.

Course Learning Objectives:
. To be able to identify and explain the various social and ecological agroforestry concepts, cultures and techniques used worldwide.
. To understand the interactions between farming communities, agricultural crops, livestock and trees for food, nutrients, water, and minimize competition for these resources.
. To analyze the connections between this course and other environmental courses.
. To develop the ability of students to think critically about environmental issues and practices associated with social agroforestry, domestically and globally.
. To enable each student to investigate in depth at least one agroforestry issue or practice and learn to find feasible solutions to current environmentally related problems.
. To identify different land-use systems, characterize economic and socio-cultural qualities.

Course Requirements:
Class discussions and debates on social, environmental benefits and misunderstandings about the concepts and classification of this progressively recognized land-use discipline.
Lectures, Readings, Videos, and Field trips: Relevant videos will be shown in class. The syllabus includes daily assigned readings. For each class session, 2 articles, excerpts

of the book "Hidden Life of Trees: What They Feel, How They Communicate" are designated, and copies of assigned readings or Internet links to readings are available on Canvas. One or two Field trips to farms applying some sort of agroforestry systems in the area will be organized.
Short reflections (of one article per week) using the **Rhetorical Précis** (RP) format are due at the beginning of class, once a week *only* via Canvas. Everyone is expected to read all **assigned articles** on the class list and write a RP of the selected article for the week. RPs together with other assignments will only be accepted via Canvas. **The Rhetorical Précis** is a formally structured abstract of the content and context of a written work. It treats articles as a form of active discourse between the author and the reader. Students are highly discouraged to *copy* the assigned articles' abstracts for submission. More description about the Précis format, including an example can be found in Canvas. There will be 4 surprise quizzes (short answers questions from lectures) during the term.

Field Trips: There are one or two required field trips. Students are expected to participate in all field trips and write a report on them. Students who cannot participate in those field trips must make alternative arrangements with the instructor by the first days of class.

Attendance and Participation
Please come to class prepared to participate in highly interactive and organized round-table discussions, small group work, question and answer sessions. And if you need to be absent for health reasons and/or family emergencies, let me know beforehand. Roll will be taken.

Final Term Paper: A short **scholarly** paper (4-5 p) is required due at the final. Please see instructions for term paper rubric posted on Canvas.
Grades scale: Attendance and Class Participation: 10%
1 Midterm Exam (short questions examination) = 30%
Rhetorical Précis (6) and Quizzes (5) = 25%
Field trips and book reports (3-4 pg. Essay) = 20%
1 Research-based term paper including Proposals = 15%

Students Learning Outcomes: At the end of the term, I would want students to understand, be able to describe the subject matter, and to critically analyze topics through round-table discussions, midterm, quizzes, group presentations, and final term paper.
. Identify the five major types of sustainable agroforestry concepts (i.e. silvopastures, alley-cropping, riparian buffers, forest farming, and windbreaks) socio-economic and environmental benefits associated with them.
. Consider the biological, socio-cultural and environmental factors when designing or evaluating sustainable agroforestry systems.
. Understand the complex human-environment interactions of food, trees, and culture

Studying for Examinations:
Examinations will be of the "short answers, essay" type. Successful answers to exam questions will include information drawn from lecture materials, videos and assigned readings.

Methods of Instruction:
The class will be organized so that students are sitting in a circle to allow open-discussion among students and instructor to discuss readings, lectures, class activities, and short videos.

Academic Dishonesty and Student Conduct:
The course conforms to the University of Oregon Administrative Rules related to Student Conduct. Please respect your fellow students by not exhibiting disruptive behavior. More expectations for student conduct can be found at https://uodos.uoregon.edu/StudentConductandCommunityStandards.aspx

Course Outline:
Syllabus and Assigned Readings: This course uses a set of assigned readings rather and a published textbook ("Hidden Life of Trees: What They Feel, How They Communicate", bu Peter Wohlleben). The book and set of assigned articles were selected to give a broad view of trees and community sustainable agroforestry systems, including both specific technology along with the social, cultural, economic, and biological context in which these environmental systems operate.

Week 1: Defining Indigenous Sustainable Agroforestry, Land Use Issues, and Biomes Classification

8 Jan. ***Introduction to the course; Definition and History of Agroforestry***
Assigned Readings: Eichhorn, M.P., P. Paris, F. Herzog, L.D. Incoll, F. Liagre, K.Mantzazas, M.Mayus, G.Moreno, V.P. Papansastasis, D.J. Pilbeam, A. Pisanelli, and C. Dupraz. 2006. Silvoarable systems in Europe- past, present, and future prospects. *Agroforestry Systems*. 67:29-50.
Fifanou, V., Ousmane, C., Gauthier, B. & Brice, S. 2011. Traditional agroforestry systems and biodiversity conservation in Benin (West Africa). *Agroforestry Systems* **82**

10 Jan. ***Biomes: Classification and description; Major Land uses Issues; Indigenous Agroforestry: Tropical Forest Swidden Systems and Impacts.***
***Assigned Readings*:** Miller, R. P, and P. K. R. Nair. 2006. Indigenous agroforestry systems in Amazonia: from prehistory to today. Agroforestry Sys. 66:151-164.
Steinberg, M. K. 1998. Political Ecology and Cultural Change: Impacts on Swidden-fallow Agroforestry Practices among the Mopan Maya in Southern Belize; *Professional Geographer*, 50(4): 407-417.

Week 2: Classification of Sustainable Agroforestry: Basic Concepts and Practices

15 Jan. No Class (MLK Holiday)

17 Jan. Types of Agroforestry in America and Europe: Analysis of Alley Cropping, Sylvopastoral, and Agroforests (i.e. coffee), Windbreaks, Riparian buffers, etc.

***Assigned Readings*:** Gold, M. A., and H. E. Garrett. 2009. Agroforestry Nomenclature, Concepts, and Practices in H.E. "Gene" Garrett (2nd Ed.) North American Agroforestry: An Integrated Science and Practice
Olea, L., & Ayanz, S.M. 2006. The Spanish Dehesa. A traditional Mediterranean silvopastoral system linking production and nature conservation growing, Badajoz, Spain (Opening paper)

Week 3: Classification of Sustainable Agroforestry in Africa and Environmental Services

22 Jan. ***Types of Indigenous Agroforestry Systems in Africa and Asia: Homegardens, Parklands, Intercropping, Rotational Tree Fallows, Agroforests (i.e. coffee), etc.***
***Assigned Readings*:** Kumar, B.M. 2006. Agroforestry: the new old paradigm for Asian food Security. *Journal of Tropical Agriculture* 44 (1-2) 1:14
Soini, E. 2005. Changing livelihoods on the slopes of Mt. Kilimanjaro, Tanzania: Challenges and opportunities in the Chagga homegardens system. Agroforestry Sys. 64:157-167.

24 Jan. ***Ecological Interactions and productivity: Nutrient Cycling; SOM; Effects of Trees on Soils: Biological Nitrogen Fixation***
***Assigned Readings*:** Rizvi, S. 1999. Allelopathic Interactions in Agroforestry Systems, http://dx.doi.org/10.1080/07352689991309487
Jose, S., A.R. Gillespie, and S.G. Pallardy. 2004. Interspecific interactions in temperate agroforestry. Agroforestry Sys. 61:237-255.

29 Jan. ***Soil Fertility and Productivity: Soil Conservation and Biodiversity Conservation***
Assigned Readings: Schwab, N., Schickhoff, U., and E. Fischer. 2015. Transition to agroforestry significantly improves soil quality: A case study in the central mid-hills of Nepal, Agriculture, Ecosystems and Environment 205: 57-69
Rosenstock, T. et al. 2014. Agroforestry with N2-Fixing trees: sustainable development's friend or foe? http://dx.doi.org/10.1016/j.cosust.2013.09.001

Week 4: Sustainable Agroforestry and Climate Change Impacts: Carbon Farming

31 Jan. ***Sustainable Agroforestry and Climate Change in the Americas and Europe***
Assigned Readings: Sharrow, S.H., and S. Ismail. 2004. Carbon and nitrogen storage in agroforests, tree plantations, and pastures in western Oregon USA. *Agroforestry Sys*. 60:123-130.10
Brenda, Lin. 2007. Agroforestry management as an adaptive strategy against potential microclimate extremes in coffee agriculture, *Agricultural and Forest Meteorology* 144, 85-94

Week 5: Sustainable Agroforestry and Climate Change cont'd
5 Feb. ***Indigenous Agroforestry and Climate Change in Africa and Asia: Carbon Sequestration***

***Assigned Readings*:** Lu, S., Meng, P., Zhang, J., Yin, C. & Sun, S. 2015. Changes in soil organic carbon and total nitrogen in croplands converted to walnut-based agroforestry systems and orchards in southeastern Loess Plateau of China. *Environ. Monit. Assess.*18 Takimoto, A., Nair, V. & Nair, R. 2008. Contribution of trees to soil carbon sequestration under agroforestry systems in the West African Sahel, *Agroforestry Systems* 76,

7 Feb. Midterm Exam *(No assigned readings)*

Week 6: *Agroforestry Systems, Food Security and Agrobiodiversity*

12 Feb. *Tree Crops: Creating an Evergreen Agriculture for Food Security and Livelihood Resilience*
***Assigned Readings*:** Assah, E. et al. 2011. Trees, agroforestry and multifunctional agriculture in Cameroun; http://www.tandfonline.com/loi/tags20
Kiptot, E. Franzel, S., and Degrande, A. 2014. Gender, agroforestry and food security in Africa, Current Opinion in Environmental Sustainability 6: 104-109
http://dx.doi.org/10.1016/j.cosust.2013.10.019

14 Feb. *Food and Agroforestry Systems*
***Assigned Readings*:** MacFall, J., Lelekacs, J., LeVasseur, T., Moore, S. & Walker, J. 2015. Toward resilient food systems through increased agricultural diversity and local sourcing in the Carolinas. *J. Environ. Stud. Sci.* doi:10.1007/s13412-015-03211

Week 7: Social and Cultural Basis of Indigenous Sustainable Agroforestry

19 Feb. *Land Tenure and Society: Social Equity, Class and Gender Issues*
Assigned Readings: Rocheleau, D., and D. Edmunds. 1997. Women, Men and Trees: Gender, power and property in forest and agrarian landscapes. *World Development.* 25:1351-1371
Book Report due (3-4 pages)

21 Feb: ***Land tenure and society: Social-Cultural Aspects; Division of Labor and Decision-making.***
Assigned Readings: Fairhead, J., Melissa Leach and Ian Scoones. 2012. Green Grabbing: a new appropriation of nature?
Galvan, D. 2004. Trove of the Maad: The State and the Rain Festival

Week 8: Economic Basis of Sustainable Agroforestry Systems

26 Feb. *Economic Basis for Sustainable Agroforestry: Cost & Benefit Analysis*
***Assigned Readings*:** Gram, S., L.P. Kvist, and A. Caseres. 2001. The economic importance of products extracted from Amazon flood plain forests. *Ambio* 30:365-368
Pilz, D., and R. Molina. 2002. Commercial harvests of edible mushrooms from forests of the Pacific Northwest United States: Issues, management, and monitoring for sustainability. *Forest Ecol. Manage*. 155:3-16.

28 Feb. ***Cost and Benefits of AFS; Policy Support***
Assigned Readings: Oluyede, C. A. and Frank, Place. 2012. Policy Support for Large-Scale Adoption of Agroforestry Practices: Experience from Africa and Asia, in P. K. Nair and D. Garrity (*eds*.), Agroforestry – The Future of Global Land Use, Advances in Agroforestry 9, Springer

Week 9: Future of Global Sustainable Agroforestry Systems and Opportunities

5 Mar. ***Future of Sustainable Agroforestry Systems: Constraints/Obstacles to Sustainable Agroforestry adoption***
***Assigned Readings*:** Jose, S., Gold, M., H.E. Garrett. 2012. The Future of Temperate Agroforestry in the United States, in P. K. Nair and D. Garrity (*eds*.), Agroforestry – The Future of Global Land Use, Advances in Agroforestry 9, Springer
Boeckmann, S. and Pia Iolster. 2007. Agroforestry in Africa: Exploring the Lack of Widespread Implementation and the Potential for Expansion.

7 Mar. ***Open***

Week 10: Group Presentations

12 Mar. ***First Group***

14 Mar. ***Second Group***

19 Mar. FINAL Research-based Paper due

Some interesting web sites:
Oregon Small Farms Site - http://smallfarms.oregonstate.edu/
UO Urban Farm Site - https://blogs.uoregon.edu/urbanfarm/
World Agroforestry Center (formerly ICRAF) - *http://www.worldagroforestry.org/*
USDA National Agroforestry Center - *http://www.unl.edu/nac*
Association for Temperate Agroforestry - http://www.aftaweb.org/
The Overstory- Agroforestry.net - *http://agroforestry.net/*
USDA Natural Resources Conservation Service
http://www.nrcs.usda.gov/technical/forestry.html
California Hardwood Page - *http://danr.ucop.edu/ihrmp/*
Glossary of Agroforestry Terms - *http://www.bugwood.org/glossary/*
University of Missouri Agroforestry Center - *http://www.centerforagroforestry.org/*
National Sustainable Information Service -
http://attra.ncat.org/attrapub/agroforestry.html6