

## AGROECOLOGY/FORESTRY 444 – AGROFORESTRY

### PRINCIPLES OF INTEGRATING FOOD, FORESTRY, AND CONSERVATION OBJECTIVES IN LAND USE

**Sessions:** Thursday 2:00-5:00  
Room FSC 1002

Dr. Tom Sullivan

**Field Projects:** As scheduled

Room 180B MacMillan

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Office hours: W 1:00 – 3:00 (or by app't)

**Timetable:**

**1. September 9**

Theme: INTRODUCTION

**2. September 16**

Theme: PRISTINE FORESTS OR AGROFORESTS?

Discussion: Human activities, nature, and agroforestry

**3. September 23**

Theme: TEMPERATE ZONE AGROFORESTRY

Discussion: Food, forests, and human ecology

**4. September 30**

Theme: SILVOPASTURE

Discussion: Cattle, forests, and conservation

**5. October 7**

Theme: RESTORATION ECOLOGY

Discussion: Passive or active restoration?

**6. October 14**

Theme: TROPICAL HOME GARDENS

Discussion: Traditional home gardens: sustainability and conservation?

**7. October 21**

Theme: COFFEE AGROFORESTS

Discussion: Economics and conservation in coffee agroforests

**8. October 28**

Theme: SOCIOLOGY AND AGROFORESTRY

Discussion: Sociology and the future of agroforestry and conservation

**9. November 4**

Theme: NON-TIMBER FOREST PRODUCTS

Discussion: Impacts of harvesting non-timber forest products?

**November 11**

REMEMBRANCE DAY

**10. November 18**

Theme: SOIL CONSERVATION IN NEPAL

Seminars: Field Project 3

**11. November 25**

Theme: FIRST NATIONS' PERSPECTIVES AND ETHNOBOTANY

Seminars: Field Project 3

**12. December 2**

Theme: AGROFORESTRY CASE STUDY IN MEXICO

Seminars: Field Project 3

## COURSE OUTLINE

### 1) Themes and Discussions

Themes are designed to be a dialogue with students to promote class discussion. They are integral to the field projects and reports. There will be one theme per week (1 hour) followed by a discussion (1.5 hours) based on 2 or 3 readings. Students will guide discussion sessions by way of leading questions derived from the reading materials. The final 0.5 hour per week, in the first half of the term, will be for discussion of field projects: tutorial sessions covering data collection, analysis, and report preparation.

### 2) Field Projects and Reports

There will be three field projects: a weekend field trip (September 24-26) to Summerland and Kelowna in the Okanagan Valley where we will visit each study area for projects 1 and 2; and a 1-day field trip to UBC Farm for project 3 (October 2 or 3):

FIELD PROJECT 1 – Silvopasture Systems: Cattle, Trees, Forage, and Habitat Management for Rare Species

FIELD PROJECT 2 – Integrated Riparian Management: Agroforestry and Restoration Ecology

FIELD PROJECT 3 – Design of Agroforestry Systems at UBC Farm

These field exercises are class projects which will generate various datasets (some large datasets will also be available) that will form the basis of the report preparation. These data are to be analyzed and written up as a report by each student with the following format:

- Abstract or Summary
- Introduction
- Materials and Methods
- Results
- Discussion
- Management Implications
- Literature Cited
- Tables
- List of Figures
- Figures

This format is for a scientific paper or detailed technical report. There are no page limits but 15-20 pages (typed, double-spaced) would probably be an average length. Students may work in groups or individually, but each student prepares a report. All references must come from credible sources: peer-reviewed scientific journals and in some cases, reports by government agencies. Each of the three reports and one seminar make up the grade for the course. **There are no exams.**

It is important that reports be completed according to the following schedule so that students can receive some feedback on their report writing during the term rather than handing in all the reports at term end:

<u>Report</u>	<u>Due Date</u>	<u>Grade</u>
1	October 14	30%
2	November 4	30%
3	December 2	30%
<u>Seminar</u>		<u>10%</u>
		100%

### **3) Group Presentations – Field Project 3**

In the latter part of the term, each group for Field Project 3 (UBC Farm) will present a seminar (50 minutes and 10 minutes for questions). Each group should prepare a 1-page summary of their presentation for distribution to the class (audience).

### **LEARNING OUTCOMES**

- 1) Discuss the significance of combining forest- and agro-ecosystems into agroforestry systems to meet socioeconomic and conservation goals.
- 2) Understand where agroforestry fits within the restoration efforts needed to mitigate ecological damage from unsustainable land use practices.
- 3) Develop an awareness of local and global opportunities for agroforestry initiatives.
- 4) Improve critical thinking about issues and problems.
- 5) Develop an understanding of how scientific research is used to solve problems and provide objective input into management decisions.
- 6) Prepare detailed scientific/technical reports on data, literature reviews, and experience generated from field projects.
- 7) Conduct an independent study, or review, of an agroforestry problem and prepare an oral report, as part of a group.
- 8) Develop a vision of where agroforestry might fit with respect to sustainability of land use practices.

### **Course Literature**

- Frelich, L.E. and K.J. Puettmann. 1999. Restoration ecology. Pages 499-524 *in* M.L. Hunter, Jr. (ed.). *Maintaining Biodiversity in Forest Ecosystems*. Cambridge University Press, Cambridge, UK.
- Hallman, R. and others. 2001. *A Guide to Agroforestry in B.C. Small Woodlands Program of B.C. and Forest Renewal B.C.*
- Leakey, R.R.B. 1999. Agroforestry for biodiversity in farming systems. Pages 127-145 *in* W.W. Collins and C.O. Qualset (eds.). *Biodiversity in Agroecosystems*. CRC Press, Boca Raton, FL.

- McNeely, J.A. 1994. Lessons from the past: forests and biodiversity. *Biodiversity and Conservation* 3: 3-20.
- McNeely, J.A. and S.J. Scherr. 2003. *Ecoagriculture. Strategies to Feed the World and Save Wild Biodiversity*. Island Press, Washington, DC.
- Moguel, P. and V.M. Toledo. 1999. Biodiversity conservation in traditional coffee systems of Mexico. *Conservation Biology* 13: 11-21.
- Perfecto, I. and I. Armbrecht. 2003. The coffee agroecosystems in the neotropics: combining ecological and economic goals. Pages 159-194 *in* J. H. Vandermeer (ed.). *Tropical Agroecosystems*. CRC Press, Boca Raton, Florida.
- Pimentel, D. and A. Wightman. 1999. Chapter 13. Economic and environmental benefits of agroforestry in food and fuelwood production. Pages 295-317 *in* L.E. Buck, J.P. Lassoie, and E.C.M. Fernandes (eds.). *Agroforestry in Sustainable Agriculture Systems*. Lewis Publishers, Boca Raton, FL.
- Rice, R.A. 2003. Tropical agricultural landscapes. Pages 195-218 *in* J.H. Vandermeer (ed.). *Tropical Agroecosystems*. CRC Press, Boca Raton, Florida.
- Rocheleau, D. 1999. Confronting complexity, dealing with difference: social context, content, and practice in agroforestry. Pages 191-235 *in* L.E. Buck, J.P. Lassoie, and E.C.M. Fernandes (eds.). *Agroforestry in Sustainable Agricultural Systems*. Lewis Publishers, New York, NY.
- Sharrow, S.H. 1999. Silvopastoralism: competition and facilitation between trees, livestock, and improved grass-clover pastures on temperate rainfed lands. Pages 111-130 *in* L.E. Buck, J.P. Lassoie, and E.C.M. Fernandes (eds.) *Agroforestry in Sustainable Agricultural Systems*. Lewis Publishers, Boca Raton, FL.
- Williams, P.A., A.M. Gordon, H.E. Garrett, and L. Buck. 1997. Agroforestry in North America and its role in farming systems. Pages 9-84 *in* A.M. Gordon and S.M. Newman (eds.). *Temperate Agroforestry Systems*. CAB International, UK.