



**FACULTY OF FOREST SCIENCES
FACULTY OF AGRONOMY
UNIVERSITY OF CONCEPCIÓN**

**1st International Graduate Workshop in Agroforestry:
Ecological Principles of Agroforestry**

DESCRIPTION

Agroforestry systems are practices that increase total production, combining agricultural crops, trees, pasture and / or animals either simultaneously or sequentially, using management practices that are compatible with the culture of the local population. The ecological principles that define the competitive and complementary interactions among trees, crops and fauna present in agroforestry systems have received considerable attention in recent years. However, these principles have not been adequately integrated and synthesized into an operational approach. This seminar will examine the ecological and ecophysiological bases for interspecific interactions, based on data from research sites and demonstration trials in temperate agroforestry systems. The priority research areas include cultural practices and system designs that reduce interspecific competition to a minimum and maximize the environmental benefits such as water quality and carbon sequestration. Process-oriented models can be used increasingly to predict resource allocation patterns and possible benefits of a suite of combinations of site and species.

TOPICS

- Lecture 1 Introduction - redefining agroforestry
- Lecture 2 Agroforestry - an ecosystem in transition
- Lecture 3 Species co-existence and agroforestry design
- Lecture 4 Ecological interactions - aboveground and belowground
- Lecture 5 Agroforestry and ecosystem restoration
- Lecture 6 Agroforestry for climate change mitigation and adaptation
- Lecture 7 Agroforestry for biodiversity conservation
- Lecture 8 Agroforestry as mosaics and corridors

LECTURERS

Dr. Shibu Jose, Director, Center for Agroforestry, University of Missouri
Dr. Francis Dube, Post-Doctoral Researcher, University of Concepción

LANGUAGE OF THE WORKSHOP

English, with simultaneous translation.

SCHEDULE

Morning 09:00 – 12:30; afternoon 14:00 – 18:00 pm

LOCATION

Faculty of Forest Sciences
Main Auditorium

DATES

23-24 January 2012



COST OF THE WORKSHOP:

Graduate UdeC students: Free (Including exam)
External professionals: USD 100.00 (including taxes)

Those interested in participating to the Workshop should send their applications in electronic form (as an attachment in RTF format), via fax or mail to:

Dirección de Postgrado FCF
Facultad de Ciencias Forestales
Victoria 631; Casilla 160 – C, Correo 3,
Tel 56-41-2204092 Fax 56-41-2246004

E-mail: postgrad@udec.cl
Website: <http://www.forestal.udec.cl/>
Concepción, Chile.



SPONSORS



Direction of Graduate Studies, University of Concepción
 Faculty of Forest Sciences and Faculty of Agronomy
 University of Concepción
 The Center for Agroforestry, University of Missouri

**DETAILED COURSE OUTLINE:
 “ECOLOGICAL PRINCIPLES OF AGROFORESTRY”**

COURSE OBJECTIVES:

The course prepares students to (1) develop an appreciation for and an understanding of the complexity of agroforestry systems, and (2) critically analyze the classical and contemporary ecological theories and principles that form the ecological basis of agroforestry.

EXAM:

Students will have multiple choices, true/false, and short answer questions. It should be taken within the allotted time. Further instructions will be given in the beginning of the exam.

Day 1 - 23 January 2012

Time	Topics
09:00 -09:15	Inauguration of the workshop
09:15 - 10:15	Course introduction <ul style="list-style-type: none"> • <i>Redefining Agroforestry</i> • <i>Practice in Search of Science?</i>
10:15 - 10:30	Coffee break
10:30 - 12:30	Agroforestry: An ecosystem in transition <ul style="list-style-type: none"> • <i>The Ecosystem Concept</i> • <i>Structure, Function, Complexity, Interaction, Temporal Change</i> • <i>Agroforestry as Successional Analogs to Natural Forests</i>
12:30 - 14:00	Lunch
14:00 - 16:00	Species co-existence and agroforestry design <ul style="list-style-type: none"> • <i>Diversity, Stability and Resilience</i> • <i>r/K Selection Theory, Resource Ratio Hypothesis</i> • <i>Island Biogeography Theory</i> • <i>Competitive Exclusion, Co-existence and the Niche Concept</i>
16:00 - 16:15	Coffee break

16:15 - 18:15	Ecological interactions - aboveground / belowground <ul style="list-style-type: none"> • <i>Competitive – Light, Water, Nutrients, Allelopathy</i> • <i>Managing for interactions</i>
18:15 - 18:30	Conclusion and wrap-up session

Day 2 - 24 January 2012

Time	Topics
09:00 - 10:30	Ecological interactions - aboveground / belowground <ul style="list-style-type: none"> • <i>Facilitative: Tri-trophic interactions</i> • <i>Facilitative: Soil, Plant, Atmospheric Continuum; Nutrient transfer, Safety net hypothesis, Hydraulic lift</i>
10:30 - 10:45	Coffee break
10:45 - 12:30	Agroforestry and ecosystem restoration <ul style="list-style-type: none"> • <i>Restoration Ecology Principles</i> • <i>Adaptive Collaborative Restoration</i> • <i>Landscape and Watershed Scale Examples</i>
12:30 - 13:30	Lunch
13:30 - 15:15	Climate change mitigation and adaptation <ul style="list-style-type: none"> • <i>Carbon sequestration</i> • <i>Buffering Extreme Weather Events</i> <ul style="list-style-type: none"> ➢ <i>Droughts and Floods</i>
15:15 - 15:30	Coffee break
15:30 - 16:30	Agroforestry for biodiversity conservation <ul style="list-style-type: none"> • <i>Landscape ecology principles</i> • <i>Agroforestry as mosaics and corridors</i> • <i>Increasing Biodiversity Benefits of Agroforestry</i>
16:30 - 16:45	Conclusion, wrap-up session and questions
16:45 - 17:45	Written exam
17:45 - 18:00	Closing remarks and workshop evaluation