A Service-learning Course with an 

Environmental/Ecological and Sustainable Development Focus:

“Sustainability Practices in Rural Costa Rica”

With the objective of providing students in the areas of Environmental and Sustainability Studies with an opportunity for a first-hand practical experience in the field of environment and ecology in Costa Rica, the International Center for Development Studies (ICDS), in conjunction with Finca La Flor, proposes a course focusing on water management, forest ecosystems, permaculture, animal husbandry, and organic agriculture policies and practices at Finca La Flor, an agro-ecological farm.

Academic Content

The course titled “Sustainability Practices in Rural Costa Rica” is a part of ICDS’ Fall semester program “Development Studies in Latin America: An Interdisciplinary Program,” and will be completed during three weeks in August, prior to the start of ICDS’ Fall semester, or as part of ICDS’ Spring semester.

The course consists of a total of ninety contact hours to be dedicated to both, the study of relevant concepts to better understand Finca La Flor’s sustainability practices, and actual work at the farm in accordance with the farm’s needs.

Participants in this course will have the option to take it as a hands-on experience additional and complementary to ICDS’ fall and spring semester program, thus completing a total of eighteen (18) credit hours for the program—including the five courses of ICDS’ fall semester program— or they may take it in substitution of one of the topical courses of the fall/spring semester program, in which case the total number of credits granted for the program would be sixteen (15).

Participating students in this proposed three-week course will be exposed to and have a chance to work in the following main areas at Finca La Flor:

1. Water management: As in any farm involving agriculture and animal husbandry, the demand for water is high. Although the farm has policies and has implemented techniques to regulate and reduce the consumption of potable water, water management in the farm has room for improvement.

2. Organic agriculture: Excessive use of agrochemicals in conventional agriculture in the area has caused serious damage and degradation of the land. Thus, the farm has said No to using chemicals and uses organic agriculture instead to avoid air pollution and food contamination.

The results of the students’ work will help the farm authorities evaluate how efficient Finca La Flor’s current efforts in both areas are and what new and more effective/efficient techniques could be adopted.

Students will in this way contribute to the farm’s goals regarding improvement of their policies, practices, and techniques in their water management and organic agriculture endeavors by looking into what is being done, conducting a situation and ecological footprint analysis, and registering the changes and the externalities attached to those changes.

The ultimate result of the work of the students will be their contribution to the final objective of finding practical solutions for the environmental problems of the community where Finca La Flor is located and assuring the sustainability of its development.
Faculty

The course “Sustainability Practices in Rural Costa Rica” will be taught on site by ICDS faculty, specifically by professors Helen Temple and Yanina Rovinski.

**Helen Temple, Ph.D.**

Helen Temple holds a Bachelor of Arts Honors’ Degree in Latin American Studies, Women’s Studies and Spanish Language from the University of North London and a Master of Science Degree in Latin American Environmental Issues from the University of London’s Advanced School of Study. In 1998 she was awarded a scholarship from the European Union Alpha Program which entitled her to undertake her second Master of Science Degree in Sociology and Central American Politics at the University of Costa Rica. She then went on to complete her PhD with Exeter University, and Birkbeck College at the University of London. Helen has spent over 15 years researching and lecturing in Costa Rica. Her academic and professional experience has been formed in the fields of Development and Sustainable Development Studies, Environmental Policy, Sociology and Ecotourism, Latin American Development History, Human Rights and Gender. She combines her interests in the social and environmental sciences to provide academic courses that focus on Costa Rica’s socio-political and environmental history and the present day development concerns.

**Yanina Rovinski, M.J.**

A journalist with an M.J. from U.C. Berkeley and a B.Sc. in Chemistry from the University of Costa Rica, Yanina Rovinski specialized in environmental issues and was the communications officer for Central America of the World Conservation Union (IUCN). As an environmental writer, she produced environmental newsletters, published articles, documented case studies, edited specialized publications and wrote scripts for multimedia productions. She also worked for the Costa Rican Ministry of Foreign Affairs as Counsellor and Press Attaché at the Costa Rican Embassy in France and at the UNESCO Delegation in Paris, where she was instrumental for the inclusion of Cocos Island Marine National Park in the prestigious list of Natural World Heritage Properties. She now lives in the Pacific Coast of Costa Rica, where she works as a translator, writer and editor, still focusing on environmental and particularly marine and coastal issues. She teaches Current Environmental Issues at ICDS and has performed as academic advisor and course coordinator in environmentally related issues.

Host Institution(s)

The main host institution for this course is the International Center for Development Studies (ICDS), working jointly with its institutional partner, Universidad Latina de Costa Rica.

An additional host institution for this course in particular is the Association for the Development of Environmental and Human Awareness (ASODECAH), a non-profit association whose objective is to complement the country’s environmental education and to strengthen the relationship between society and the environment. The association is integrated by neighbours of the community as well as professionals working together on an integrated farm (Finca La Flor) seeking the sustainability of its social and environmental projects.
Course Site

Finca La Flor is an agro-ecological farm located in the highlands of Costa Rica’s Central Valley in the town of La Flor, approximately 1.5 hours to the East of San José, above the Orosi Valley near Paraíso in Cartago, Costa Rica. Its grounds include ten hectares of regenerated forest, botanical and medicinal gardens, domestic animals (goats, chickens, horses) and organic agriculture.

The farm is part of a larger effort involving neighbours of the local community and professionals working together to secure the sustainability of social and environmental projects in the area. Their efforts seek to fill the protection gap that exists between Costa Rica’s extensive protected areas and communities experiencing “harsh environmental impacts from the contamination of rivers and ravines, gas emissions, inadequate management of solid and liquid wastes, deforestation, monoculture, extensive cattle ranching and an excessive use of agrochemicals in the fields of agriculture and cattle farming,”¹ including the community where the farm is located.

Course Objectives:

The issues of sustainability in the context of the specific field research location will be explored and

- Students will gain an understanding of sustainable principles and their application in a tropical rural setting.
- Students will gain hands-on experience of tropical agricultural landscapes and dynamics.
- Students will explore forest ecosystems and participate in forest management and species data collection.
- Students will design, develop and implement improvements in sustainable systems.
- Students will gain first hand research experience.
- Students will gain deep insight into the possible implementation of related environmental and sustainable development policy.
- Students will address the advances and limitations in the application of organic farming, alternative agricultural and animal husbandry methods.
- Students will appreciate the complexities and challenges in working with participatory processes and help develop relations, projects and mutual support between the local community and the farm.

Students will be guided through the principles of the systems of permaculture, low impact goat keeping (La Flor provides one of the best examples in the region of low impact goat management systems), sustainable, organic and integrated farming systems, and environmental education. Students will participate in a dynamic rural setting and thoroughly appreciate the application of sustainable development principles and concepts through a diverse set of agricultural activities.

Possible on-site projects include:

- Forest maintenance (including trail blazing and humid tropical forest pruning and tree care)
- Forest Flora and Fauna Inventory Development
- Implementation and maintenance of biodigestor systems
- Implementation and maintenance of water management systems
• Implementation and maintenance of waste and recycling systems
• Implementation and maintenance of permaculture systems
• Upkeep and development of the children’s garden
• Community outreach programmes and environmental education
• Development of the library and teaching resources project
• The production of composts
• Milk and cheese production
• Goat keeping, animal husbandry and farm animal care
• Improving “access for all”
• Innovations and improvements with low impact technologies

**Participatory and bottom-up approaches:**

The design, development and implementation of the possible projects will depend on the current priorities and needs of La Flor, their staff, community and systems. They will vary according to season and will be established through inter-institutional pre-visit planning (between La Flor and ICDS) and the initial stages of the course (between the students and La Flor and ICDS academic staff).

Student’s innovations are welcome at the design level and these will be thoroughly discussed with La Flor and ICDS for possible implementation. Finca La Flor has already expressed interest in improving water management systems, community outreach programmes, forest maintenance, and the re-installation of a bio-digester plant and would welcome project designs and support in these areas among others. Each student will get a chance to participate in many of the farming methods and experience many features of the integrated sustainable systems. Students will be actively guided through the sustainable development theory, systems and practice.

**Long term vision:**

We will be supporting La Flor in the profiling, data collection and analysis of their sustainable systems, developing system definitions, variables and producing a data base of information. ICDS students will hopefully become part of a long term desire of the farm to be improving its search and implementation of sustainability, along with fulfilling the desire of ICDS to support its students through the possibility of doing meaningful work in the field and contributing to Costa Rica’s unfolding sustainable development practices.
# Course and Class Program Content

## First week

**Academic contents:**
- Introduction, course description and project assignments
- Definitions (sustainability, agroecology, agroforestry)
- Costa Rica in its development context
- Environmental and Sustainable Development Policy and community farming issues
- Sustainable food production

**Field work**
- Introduction to Finca La Flor: staff will guide students, present La Flor’s goals and objectives, describe and show sustainable techniques employed, and point out possible areas for individual research and analysis.
- Work will be assigned to individual students in line with the projects/methods selected for evaluation. Every day, students will dedicate time to this project in addition to the work assigned by farm supervisor.
- Focus on water management at La Flor: learn and analyze techniques employed at the farm to decrease water waste and make efficient use of this resource.

## Second week

**Academic contents:**
- Agriculture and the environment
- Soil conservation
- Forest management
- Energy management
- Sustainable animal husbandry

**Field work**
- Pest management techniques
- Soil conservation
- Waste management
- Biodigester
- Work on Individual projects

## Third week

**Academic contents:**
- Biodiversity and agriculture,
- Permaculture
- Organic agriculture
- Extension and environmental education
- Food production and human health

**Field work**
- Organic agriculture
- Organic fertilizers
- Community engagement:
- Present to farm, community, and ICDS staff the results of individual projects
Time Table of Activities (subject to small changes)

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<th>WEEK 1</th>
<th>Monday</th>
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**BREAKFAST and BRIEFING**

| 7.00-12.00am | Introductory workshop: Themes: Farm mission and practice. | Practical: Farm work: according to present needs of farm. | Practical: Farm work: according to present needs of farm. | Field Trip: Exploring local landscapes, environmental issues, systems and cultures... | Practical: Farm work – group themes and project development. | Weekend free – free to travel, study of give extra farm or community support. | Optional practical work: Farm support work or group/individual project development or inventory development. |
| (3-5 hour sessions) | Introduction by project founder. | Farm Tour: Explanation of farming systems from la Finca management. | Farm Tour: Explanation of farming systems from la Finca management. | Development of academic themes and frameworks...forest policy and protection, water management and energy issues. | Site Visit: Hike - private reserve monitoring, Represa Cachi, Ujarras, Orosi, San Miguel - Tucurique. | | |

| 2-4pm | Class Introduction to farm, agricultural systems, course concepts, and course assignments. | Class Theme: Costa Rican Development and conservation History and shifts to Sustainable Development. | Class Theme: Sustainable farming systems, Costa Rican case studies and beyond. | Picking practical work themes and project themes. (group work) | Practical: Farm work – group themes and project development. | | |

| 4-6pm | Meeting: Farm Needs Briefing from La Finca management. | Individual Study Time: Recommended reading time with supervision and project development support. | Individual Study Time: Recommended reading time with supervision and project development support. | Meeting: Picking individual project component of group work. | Practical: Farm work – group themes and project development. | | |

**LUNCH**

|  | Lunch in San Miguel with local community. | Meals still provided at the weekends | | | | |

**DINNER**

|  | Dinner Free time | Dinner Free time | Dinner Free time | Dinner Free time | Dinner Free time | Dinner Free time | Dinner Free time |

*(3-5 people) themes determined by La Finca and student’s interests.

Please Note: Each week’s total practical work hours = 20,

Total academic work hours = 10

= 30 hours per week
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<td>5-6am</td>
<td>Optional Bird Spotting/Inventory and forest monitoring.</td>
<td>Professor Switch.</td>
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<td>7.00-12.00am</td>
<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
<td><strong>Practical:</strong> Farm work: according to present needs of farm – or group swap session.*</td>
<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
<td><strong>Field Trip:</strong> Visit to EARTH University, PEP, community outreach</td>
<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
<td>Weekend free</td>
<td>Optional practical work: Farm support work or group/individual project development or inventory development.</td>
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<td>2-4pm</td>
<td><strong>Class</strong> Theme: Community development and participatory approaches: Advances and Issues in Costa Rica.</td>
<td><strong>Class</strong> Theme: Farming systems and animal husbandry</td>
<td><strong>Class</strong> Theme: Farming systems water and Waste Management</td>
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<td>4-6pm</td>
<td><strong>Meeting:</strong> identifying gaps in knowledge for project development/preparation for change of supervisors. Requests for specific material development, data and resources.</td>
<td><strong>Individual Study Time:</strong> Recommended reading time with supervision and project development support.</td>
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<td>* You will spend 3-5 hours of your practical work time this week working on another aspect of the farm – swap with one of the other group members. Your role as group visitor will be to gain experience in another area of farm work and ask as many questions as possible to stimulate the other group’s research and knowledge sharing capabilities. If your questions can not be answered - the responsible team must investigate and incorporate findings into their final group project presentation.</td>
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<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
<td><strong>Practical:</strong> Farm work: according to present needs of farm – or group swap session.</td>
<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
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<td>3-5 hour sessions</td>
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<td>2-4pm</td>
<td><strong>Class</strong> Theme: Organic Farming Systems and methods.</td>
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<td><strong>Class</strong> Theme: Permaculture farming methods</td>
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<td>4-6pm</td>
<td><strong>Meeting:</strong> Community outreach, best methods for work presentations</td>
<td><strong>Individual Study Time:</strong> Recommended reading time with supervision and project development support.</td>
<td><strong>Individual Study Time:</strong> Recommended reading time with supervision and project development support.</td>
<td><strong>Practical:</strong> Farm work – group themes and project development.</td>
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<td>Quizzes</td>
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<td>Group project (1 hour each group)</td>
<td>Final presentation of overall work plan, proposal, activities, findings, limitations and achievements (including description of the identification and negotiation of individual roles and identification of role specifications for the development of the individual work component).</td>
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<td>Individual project (1 page each day – 15 to be handed in at end of course)</td>
<td>Practical activity log (work record, interests, observations, issues, and findings).</td>
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<td>Individual project report</td>
<td>Systems (farming or ecosystems) inventory/data collection log and report (advances and limits – final conclusions).</td>
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<td>Individual project (30 minutes each)</td>
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**Note for teacher’s participation and student supervision:** Teachers will spend seven week-days each on site, including one field trip each (teachers might stay for the weekend if they wish, and students will be free to leave during the first and second weekends). Both teachers will be present for the final weekend evaluations. A total of nine days of teaching and supervision will be carried out per teacher (two teachers) and weekend supervision will be provided by La Flor management.

**READING:** Please note: your reading pack will contain ten compulsory reading texts, you will be quizzed on this material - additional texts will be referenced in classes, during practical work and on site visits. These are also included in the bibliography and will be available for reference and project development. Please feel free to request support for finding specific information needed for project development and where possible it will be provided.
BIBLIOGRAPHY: (Subject to updates)


ESGPIP (2009) Shelters and Housing for Sheep and Goats. Technical Bulletin No.32. USAID.


Martin, F. Plants for Use in Permaculture in the Tropics. 
http://www.barkingfrogspermaculture.org/tropicalplants.pdf

Mollison, Bill (1981) Introduction to Permaculture. Published by Yankee Permaculture. Wilton, NH USA. 
www.barkingfrogspermaculture.org/PDC_ALL.pdf

Mollison, Bill (1981) Forests in Permaculture. Published by Yankee Permaculture. Wilton, NH USA. 


Viewing: