NREM 380: Tropical Forestry and Agroforestry

Instructor: Travis Idol  
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Sherman Lab 125  
956-7508

Class Times: MWF 8:30-9:20, St. John 013  
Office Hours: MW: 11:00-12:00, or by appointment


Other Readings: As assigned by instructor. Visit class website at [http://laulima.hawaii.edu](http://laulima.hawaii.edu)

Course Objectives:  
1. Understand the biophysical environment of tropical forests  
2. Become familiar with forest management planning and practices  
3. Develop practical skills in forest inventory measurement and analysis  
4. Evaluate the role and potential of tropical agroforestry systems  
5. Understand the main criteria and indicators of sustainable forestry

NREM Student Learning Outcomes:  
4. Explain the ecological processes and relationships that determine given environmental conditions  
5. Demonstrate technical competency in natural resource management and develop and implement solutions to real-world problems

<table>
<thead>
<tr>
<th>Assignments*</th>
<th>% of Grade</th>
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<tr>
<td>Class Participation</td>
<td>30</td>
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<tr>
<td>Field Trip Assignments</td>
<td>20</td>
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<tr>
<td>Mid-term exams (2)</td>
<td>15 each</td>
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<td>Final exam</td>
<td>20</td>
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Expectations:  
I expect that students will come to class prepared, having reviewed the reading assignment ahead of time. I expect students will work together on certain assignments but turn in their own work. Students can expect that I will follow the syllabus as closely as possible so they can adequately prepare for class. They can expect that I will provide clear instructions for all assignments. They can further expect that I will grade assignments and exams fairly and return them promptly. They can finally expect that I will maintain regular office hours or be available by appointment at a mutually convenient time.

Assignments:  
1. Class Participation  
   Participation will be evaluated in 3 ways. First, students will be expected to attend class regularly. Please inform the instructor ahead of time if possible if you cannot attend class. Second, students will be expected to read the assignments ahead of time. For certain weeks, the instructor will hand out a set of questions at the end of the previous week that you must complete and turn in at the beginning of the next week. These will be graded on 10-point basis. Finally, during certain weeks there will be a supplementary reading in which individual students will be expected to answer particular questions associated with the reading and make a short presentation in class. Other students will complete a class assignment afterward.
2. Field trip assignments.
   We will take two half-day field trips during the semester in lieu of a Friday discussion section. This will allow us to do hands-on forest inventory and analysis work.

3. Exams: Two mid-term exams will be given on **February 22** and **April 4**. A comprehensive final exam will be given on Monday, May 12 from 9:45-11:45.

Schedule of Topics

**Week 01: Basics of Tropical Forests**


**Week 02: Tree Growth and Architecture**


**Week 03: Tropical Climates and Life Zones**

*Readings*:

*Friday Discussion*: Diagramming and mapping climate-vegetation zones.

*Readings*:
   - Walter et al. *Climate-diagram Maps*.

**Week 04: Forest Measurements**

*Readings*:

**Week 05: Forest Development**

*Reading*:

*Field Trip*: Saturday, February 13; no class Friday, February 12

**Week 06: Forests and Forestry in Hawaii**

*Readings*:

*Holiday*: Monday, February 15

*Exam 1*: Friday, February 19

**Weeks 7-8: Tropical Forest Management from Pre-history to European Colonization**
Readings:

Discussion: The controversial role of shifting cultivation in tropical forest management

Weeks 9-10. Modern Silvicultural Systems

Readings:
Handout on harvest methods
Kellman and Tackaberry. 1997. Tropical Environments. Ch. 6: Tropical Forests and Forestry
Forests. Ch. 1: Plantations for the Tropics.

Discussion: Plantation forestry in the tropics

Week 11: Optional Field Trip to Hawaii Island, Mar. 24-26

Week 12-15. Tropical Agroforestry Systems

Readings:
Chapter 1. Information Resources for Pacific Island Agroforestry.
Huxley 1999. Tropical Agroforestry. Section III.
Chapter 12. The Tree-Crop Interface.
Chapter 13. Competition and Complementarity.
Chapter 5. Introduction to Integrating Trees into Pacific Island Farm Systems.
Chapter 4. Integrating Understory Crops with Tree Crops.
Chapter 7. Economics of Farm Forestry.

Exam 2: April 4, 2008

Field Trip: Saturday April 12; no class Friday, April 11

Discussion: Tree-crop interactions in agroforestry systems.

Weeks 16-17. Designing Sustainable Forestry Systems

Readings:

Discussion: Sustainable forestry in the tropics
Bibliography


