

# Tropical Ecology PBIO 322/522, Fall 2005 Call number: 05156/05176

## Instructor

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## Meeting times

Lectures: Mon/Fri 1:10-2:30  
Labs: Mon 2:40-3:30  
Office hours by appointment

## 1. Syllabus

- Week 1. Course introduction and administration. Geography and climate. Paleoclimatology.  
**Lab 1:** Bali, Indonesia.
- Week 2 Tropical diversity. Three-dimensional structure of the forest. Growth form and life history. Flowering and fruiting schedules.  
**Lab 2:** Belize, Central America.
- Week 3 Canopy trees. Dilemmas faced by a large tree.  
**Lab 3:** Queensland, Australia.
- Week 4 Forest herbs. Vines and lianas. .  
**Lab 4:** Thailand, Southeast Asia.
- Exam** on weeks 1-3 **Friday 9/30 at 1:10-2:30**
- Week 5 Epiphytes. Pioneer and shade-tolerant species. Plant-animal interactions I. Pollination. Coevolution.  
**Lab 5:** Malaysia, Southeast Asia.
- Week 6 Plant-animal interactions II. Frugivory. Dispersal. Mimicry. Herbivory  
**Lab 6:** Class presentations.
- Week 7 Ecosystem functioning. Tropical soils. Hydrology. Nutrient dynamics. Disturbance dynamics. Gaps. Succession. Spatial heterogeneity.  
**Lab 7:** Class presentations.
- Exam** on weeks 4-6 **Friday 10/21 at 1:10-2:30**
- Week 8 Traditional and small-scale forms of exploitation. Swidden systems. "Slash-and-burn". Ancient human impacts.  
**Lab 8:** Class presentations.
- Week 9 Commercial exploitation. Timber. Silvicultural models. Non-timber products (rubber, quinine, rattan, etc.) **Essay due Monday 10/31**  
**Lab 9:** Class presentations.
- Week 10 Forest fragmentation. Landscape ecology. Case histories: Rondonia, Thailand. Conservation. Strategies for the 21<sup>st</sup> century.

## Lab 10: Class presentations

Exam week    **Exam** on weeks 7-10    **Saturday 11/19 at 12:20**

## 2. Academic policy

All course policy is consistent with Ohio University policy. Please consult the Student Handbook. In addition, please note:

### Academic honesty

I expect that all students will conform to the highest standards of academic honesty. Academic dishonesty of any form will result in immediate dismissal from the course without credit. This includes all the varied and subtle forms of plagiarism. If you are not sure when or how to assign credit, ask me beforehand.

### Attendance

Lectures begin promptly at 1:10 pm, and conclude at 2:30 pm ( $\pm$  1-2 minutes).

There is no attendance requirement. However, exams are drawn directly from lectures so it is strongly to the student's advantage to attend all lectures. As attendance is not required, no "make-up" exams will be scheduled.

## 3. Assignments

### Reading

Please read

Week 1	Geography and climate	Whitmore (2001), pp. 1-25, 89-108
Week 2	Forest structure and diversity	Whitmore (2001), pp. 25-39, 51-64, 174-178
Week 3	Tree life history and growth	Whitmore (2001), pp. 109-131
Week 4	Herbaceous plants	Whitmore (2001), pp. 40-51; Osborne (2000) pp. 238-253
Week 5	Plant/animal interactions	Whitmore (2001), pp. 65-88, Raven et al. (1999), p. 530-542, 546-549.

### Regional study

Each student is expected to prepare a case study of human exploitation in a tropical region. Findings will be handed in as an essay (10-15 pages), and presented as a brief (15-20 minute) oral presentation. If a student comes from a tropical country, she/he must write about a region on another continent. Further details of the essay will be presented in class.

### **Labs**

Labs in the first half of the course will review plant species of particular ecological and/or economic importance using slides and (where possible) fresh material from the greenhouse. Material will be tested by a quiz at the beginning of the next class. Labs in the second half of the course will be devoted to oral presentations related to each student's regional study. Credit will be deducted for late assignments.

### **Expectations of graduate students**

In place of the regional study requirement, graduate students will prepare a short review based on a topic currently debated in the tropical ecology literature. The review should include at least 12 citations published in the primary literature in the last 5 years. Topics must be approved beforehand. Graduate students will receive different versions of the exams than undergraduates requiring a more abstract conceptual mastery of the material.

### **Assessment**

	Credit
Exams	3 @ 20%
Regional study	
Essay	15%
Oral	15%
Quizzes	<u>10%</u>
Total	100

## **5. Texts**

Whitmore, T.C. (2001). *An Introduction to Tropical Rain Forests*. Oxford University Press, New York (ISBN 0-19-850147-1)

Hudson, J.C. (ed.) (1999). *Goode's World Atlas* (paperback). 20<sup>th</sup> Edition. Rand McNally Publishers, (ISBN 0-528-64000-3)

Students will read the relevant topics in Whitmore (2001) as lectures are presented. Sources of examples used in lecture are listed in the course website – students are encouraged to read from this list on their own. Readings will occasionally be used from other texts; they will be handed out in lecture.

The Atlas is not required but strongly suggested. It is an excellent, inexpensive atlas which will let you find the many places discussed in this course. I will expect you to be able to locate places such as Gabon, Sarawak, and French Guiana. Geographical familiarity will be tested on exams.

